THE IRON AGE

THURSDAY, JUNE 15, 1893.

The No. 4 Peerless Pipe Machine.

The pipe threading and cutting machine built by the Bignall & Keeler Mfg. Company of St. Louis is here illustrated.

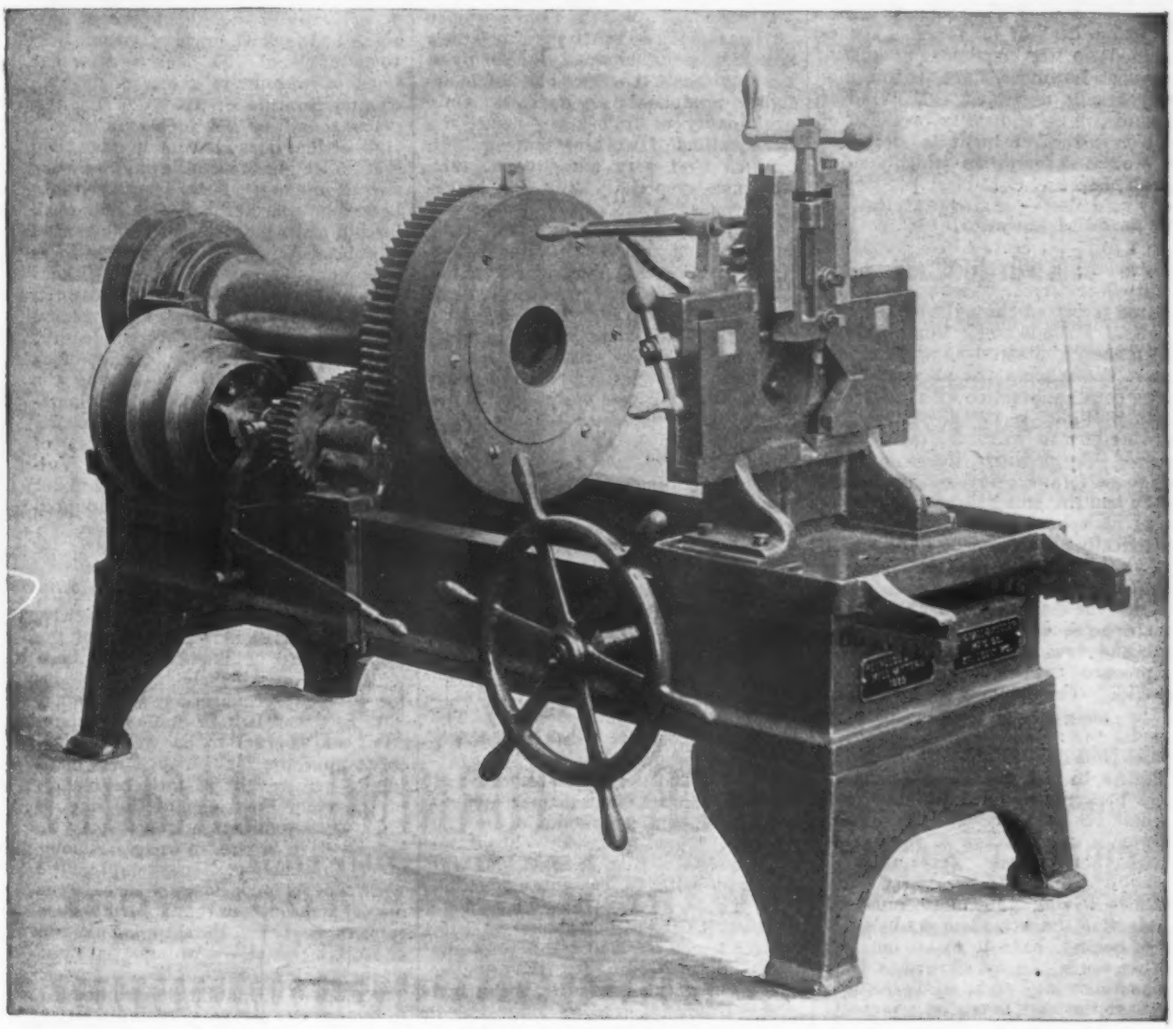
The most important features of the machine are contained in the die head, a radical departure being that there are no bolts to take out nor heads to remove in order to change dies, thus saving the operator much time and trouble. To place the dies in the head, the opening and closing lever, connected by its short arm to the micrometer screw, which is secured by a swivel and stand to the slotted cam ring, is lifted until the cam ring has been made to revolve sufficiently to bring the slotted holes opposite the fixed ways in the head for the dies, which are then entered into their respective places, each die in the slot having its corresponding number.

When the dies are thus in place the lever is returned to the horizontal, bringing the ring to its first position, which seals the die ways. A stop latch is then dropped on to the ring, preventing the lever revolving it more than the distance necessary to open the dies sufficiently to allow the withdrawal of the pipe or the advancement of the carriage toward the pipe in the gripping chuck in order to bring the cutting off knife into position for use.

Each die has a steel pin, which engages a groove immediately against and following the line of the cams. As the die ways in the head are immovable the partial revolution of the cam ring advances the dies toward their common center, by the wedge form of the cam —the thin edge being at the slot, where the dies first pass through—for as the ring is turned the thicker portions of the "wedges" are brought against the dies, forcing them toward their common center. It will thus be seen that the dies can be adjusted to the minutest degree by turning the micrometer screw, which controls the movement of the cam ring; and any variation can be made in the dies. If the operator has an irregular fitting he can readily thread his pipe to the required diameter. The cutting-off knife slide is on the reverse side of the die stand and is provided with steel gibs so that any wear can be readily taken up.

The cone pulley has three steps to give primarily three speeds. Sliding on a feather on the cone-pulley shaft is a compound spur gear having an extended hub in which is turned a groove to receive a brass split collar. The outside half of this collar is cast with a stud which is tapped to admit a cap screw securing the forged steel shifting arm. By shifting the compound gear to engage the second wheel three additional speeds are given, making in all six for the eight sizes of pipe which the machine handles. On the extreme end of the driven center shaft and engaging the arbor gear wheel is the main driving pinion, which is cut out of solid machine steel, assuring great strength and durability.

To the side of this pinion is attached the crank operating the oil-pump plunger, forcing the oil through a pipe into the die head, which is cored to allow the oil to flow freely to the dies. Tedious hand or drip feeding of the oil is thus avoided, and no fear is felt for possible consequences in neglecting to flush them, for every revolution of the pinion must force an ample supply of oil, which is used over and over again,



THE No. 4 PEERLESS PIPE MACHINE.

and each time is drawn through a strainer, thus guarding against chips from the previously threaded or cut pipe interfering with the perfect action of the dies.

The chuck on the tail of the spindle, or arbor, is of the scroll pattern and is used to bring the pipe into accurate line with the dies. On the head of the arbor is the gripping chuck, having a malleable iron frame proportioned to withstand severe usage. This frame is operated by means of a steel male and female screw, and has set in it tool-steel V-jaws of wide face whose teeth are machine cut and in perfectly true lines.

This machine is furnished with one set each expanding dies for 1, 1¼, 1½, 2, 2½, 3, 3½ and 4 inch pipe.

Puddling at Lowmoor.

A good deal of interest has always attached to the methods of manufacture at Lowmoor, since its iron probably stands unrivaled. E. Windsor Richards, in his address as president of the Iron and Steel Institute, describes the process at the works which are under his charge. Cold-blast pig iron—really cold blast—has always exclusively been made at Lowmoor. It contains from 1 to 1¼ per cent. silicon, and 0.3 phosphorus; a very rich gray forge quality is preferred. The whole of the pig iron is passed through the refining process. There is no pig iron puddled. The refinery elminates the whole of the silicon, and reduces the phosphorus to 0.1 by constant practice with materials of very slight variation, the refiner knowing how to leave the carbon untouched. The puddlers, therefore, have only to perform the duty of elminating carbon and the small remaining quantity of phosphorus, in order to obtain a practically pure lump of iron. As it is of vital importance that the puddling should be as neaarly perfect as possible, and that the shingling under the steam hammer be equally well performed, rewards and fines are established in order to procure even quality of workmanship. The method of inspection of the puddled and hammered lump is as follows: The foreman every day chooses from each man's work any heat he desires to test, and has one or more pieces broken through. The fractures of these lumps are carefully examined and numbered according to the degree of parfection attained. These numbers are added up at the week end. The workmen having the most numbers, representing the worst samples in evenness of quality, have to stand out, or, in other words, are not allowed to work on the following week, while the men who have the least numbers, representing the best samples of work during the week, are rewarded by money prizes. This system necessitates the keeping of surplus men, who are waiting to be taken in when others are turned out. The decision of the foreman in judging the samples is never disputed; the samples are exhibited so that the men have every opportunity of examining for themselves the work they produce, the figures showing each man's work being posted up daily, so that the men are satisfied that no partiality is shown, no errors of judgment made. This system has been strictly carried out day by day, and every day over many years, and creates a very desirable competition, keeping the men's attention concentrated on their work. The puddler works ten heats of refined metal of 3 hundredweight each per turn. The puddled balls are all worked under 50 hundredweight steam hammers into slabs about 12 x 10 of varying thickness. Each slab bears the puddler's special mark. These slabs are then piled and repiled to make the required weight for rolling into the various sizes of finished iron, whether plates or bars. All these weldings require the greatest care in heating and hammering; the iron bears a very high heat without any deterioration of quality.

In plate rolling the greatest care, too, has to be taken to avoid laminations and blisters; the purer the iron, the more difficult it seems to be to prevent them. Careful examination is made when rolling by having jets of water playing on the surface of the plates to detect blisters or unwelded portions. The inspection is continued when the plate is cold by rapping all over both surfaces with a hammer and noting the sheared edges all round the plates. The workmen having inherited their fathers' positions have done no other work all their lives, but manipulate the same class of materials to produce the same results. Only one quality of iron being made, the same method of working having been pursued over very many years, each workman is especially skillful at his respective task.

The result of all this care and skill and good materials is a soft, ductile and reliable iron. Best Yorkshire iron has attained its high reputation by reason of its power to withstand many sudden shocks without fracture, its reliability and its welding qualities. The tensile strain that such iron naturally gives, or, as Sir James Kitson better expresses it, "cheerfully gives," should be accepted, when all the processes of manufacture are conscientiously performed by those who value their reputations, and, indeed, whose very existence as manufacturers is at stake. Some engineers insist on higher tensile strains in iron, when at the same time they require fiber to give a safety and softness, to give weldability. Professor Arnold has just made the following interesting experiment: He took 50 pounds of pure wrought iron and fused it in a special crucible, so as to free the mass from interposed slag. The lump hammered and rolled exceedingly well. It contained iron 99.76 and carbon 0.07. The mechanical tests gave 21 tons tensile strain in 2 inches; elongation, 50 per cent.; reduction of area, 80 per cent. Now, for mild steel to stand Lloyd's tests of from 28 to 32 tons tensile strain with 16 per cent. elongation in 8 inches we find that for a plate ¼ inch thick the carbon should be 0.15, and for 1 inch thick to stand the same tests, and allowing for the smaller amount of work on the plate, the carbon should be 0.25.

Best Yorkshire iron, on a plate ¼ inch thick, will stand 23 tons tensile with the grain and 16 per cent. elongation, and 20 tons crossways with 12 per cent. elongation, and a plate 1 inch thick will stand 22 tons with the grain and 16 per cent. elongation, and 20 tons crossways with 12 per cent. elongation, with the carbon something above traces. These examples prove what every one knows, but which is sometimes lost sight of, that to increase the tensile strain the carbon must be increased, and the greater the amount of carbon the greater the difficulty in welding. It is easy to increase the carbon in a molten metal by increasing the quantity of ferromanganese, but fiber cannot be obtained in this manner, so it follows that by increasing the carbon in iron to obtain higher tensile strains, its welding properties and the fibrous nature of its texture are destroyed, giving a harder and more brittle metal, unsuitable for the work that soft iron is called on to fulfill, and to be even dangerous under certain conditions in proportion as the tensile strains, or, in other words, as the carbon is increased.

Rubber Tests.

Lieutenant L. Vladomiroff, a Russian naval officer, has recently carried out a series of tests at the St. Petersburg Technical Institute with a view to establishing rules for estimating the quality of vulcanized india rubber. The following, in brief, are the conclusions arrived at, recourse being had to physical properties, since chemical analysis did not give any reliable result: 1. India rubber should not give the least sign of superficial cracking when bent to an angle of 180 degrees after five hours of exposure in a closed air bath to a temperature of 125° C. The test pieces should be 2.4 inches thick. 2. Rubber that does not contain more than half its weight of metallic oxides should stretch to five times its length without breaking. 3. Rubber free from all foreign matter, except the sulphur used in vulcanizing it, should stretch to at least seven times its length without rupture. 4. The extension measured immediately after rupture should not exceed 12 per cent. of the original length, with given dimensions. 5. Suppleness may be determined by measuring the percentage of ash formed in incineration. This may form the basis for deciding between different grades of rubber for certain purposes. 6. Vulcanized rubber should not harden under cold. These rules have been adopted for the Russian navy.

The first number of the *Labor Gazette*, to be published monthly by the newly-constituted Labor Department of the British Board of Trade, has just been issued. It contains much valuable information in connection with labor, both in Great Britain and other countries, and appears to be well adapted for the purpose for which it was instituted—namely, to set forth both sides of the labor questions of the day in order that a correct judgment may be arrived at in regard to them. Among other information, for example, the *Gazette* devotes considerable space to the history and causes of the late Lancashire cotton dispute and the shipping dispute at Hull, which throw an impartial light on the true inwardness of those episodes. The scope of the publication is intended to include the provision of information on all points bearing on the welfare of workers and the institution of special inquiries into labor disputes, fluctuations of wages and other cognate matters. In this connection inquiries have been instituted into the relief works started for the benefit of the unemployed, with the causes of their success or failure; into the employment of children, and into the so-called noxious trade processes. A general report on wages is being prepared and will soon be issued in the *Gazette*, which, it is said, will be of a very complete and interesting nature.

A bill for the prevention of accidents and protection of the life and bodily safety of workmen is at present before the Italian Parliament.

The Cleveland Automatic Screw Machine.

The automatic screw machine made by the Cleveland, Ohio, Machine Screw Company consists of a spindle or driving head which carries the rod from which the screw is to be made, together with the mechanism necessary to feed this wire out at the proper intervals in order that the different operations for forming the screw may be done upon it, and a turret, which, by advancing, returning and rotating, causes each tool in the turret in succession to perform its work in forming the screw.

As will be seen from the cut, the turret in this machine is horizontal and is rigidly mounted on the forward end of the turret shaft. The turret is journaled in a stationary box, the arrangement being such that the turret and its shaft may not only revolve about its axis in order to bring the tools opposite the work, but the turret and shaft may also reciprocate endwise through the journal boxes in advancing and retiring each tool, so that the different tools may successively perform their work. The different tools are inserted in longitudinal holes drilled in the forward end of the turret, these holes being in concentric order with the axis of the turret, hence the tools revolve in a circle considerably less in diameter than the diameter of the turret.

The locking device for the turret consists of a series of longitudinal radial slots, there being as many slots as tools to be borne in the turret, and a wedge-shaped block or dog mounted on an upright rod, which moves up and down vertically through a hole in the bed and in and out of the radial slots. This rod is operated by a lever fulcrumed under the bed, which is provided with an upwardly projecting pin, which at the proper time is engaged by a cam which depresses the lever and so unlocks the turret.

Back of the turret is a cylinder journaled on the turret shaft and held from moving endwise on this shaft by means of a shoulder at one end and a nut engaging the other. This cylinder has a pair of rearwardly projecting arms that constitute one member of a so-called "slip clutch," the other, or driving member, comprising the radial cams or wings of a sleeve, these wings fitting easily between the arms of the cylinder, so that while the two members must revolve in unison the cylinder may move endwise independently. The cam for unlocking the turret is located on one of the wings of the sleeve. This sleeve is of considerable length, and is journaled upon the turret shaft and held from moving endwise by being itself journaled in the rear box by a groove. Hence it will be understood that if the shaft be moved endwise it must slide within this sleeve in so doing.

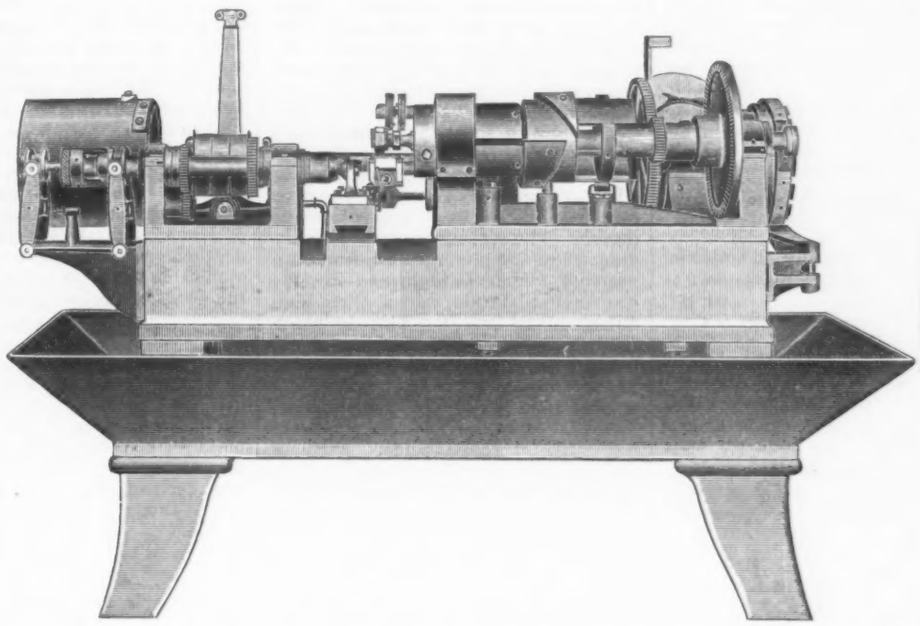
The cylinder is provided with cams which engage a roller journaled on a stationary stud attached to the bed, for moving itself endwise. The end movement imparted to the cylinder by this cam is imparted to the shaft and from thence to the turret, whereby the tools are advanced to their work and retired therefrom. When the turret and cam cylinder are at the extreme of their movement, a pin projects through the cam cylinder, and, engaging with a pin projecting from the rear end of the turret, rotates it one notch, the forward movement of the turret disengaging the two pins.

It will thus be seen that while the cam cylinder and sleeve rotate continually and in unison, the turret rotates only intermittently. Connected with the turret sleeve through a pair of bevel gears is a lateral shaft extending at a right angle to the turret shaft. On this shaft are mounted a tight and loose pulley, the belt being on the former for withdrawing the tools from the work, and on the latter for the forward or cutting feed. When the belt is on the latter the cutting speed of each tool may be varied at the will of the operator to suit its particular requirements, as follows: Attached to the loose pulley is an eccentric which drives, through an eccentric strap and rod, a rock shaft having a slotted face bearing a sliding block with a wrist pin. A pitman, mounted on the end of the shaft and attached to the wrist, drives, by means of arms extending in opposite directions and bearing friction pawls, a friction disk mounted loosely on the shaft, which, in turn, by means of a ratchet and pawl, drives the shaft and causes the turret to move forward. Attached also to the wrist is a rod connected with the free end of a lever bearing a roller that travels on the ends of the segmental blocks which are fastened on to the rim of the wheel. The securing bolts of the segmental blocks operate in the slots of the rim of the wheel, whereby they may be adjusted forward or backward, as required, in shifting the lever and connected block forward or back to vary the length of the stroke of the pitman.

The wheel containing the segmental blocks is rigidly mounted on the cam shaft, this shaft being geared to the sleeve in the ratio of four to one in this case, or in the same ratio as there are holes for tools in the turret. Therefore, while the sleeve is making one revolution the shaft and wheel make but a quarter of a revolution, and it follows that one-quarter of the segmental blocks are devoted to actuating each of the different tools in the turret, and the segments for each particular tool may be easily adjusted endwise to give the feed adapted to such tool. The movements of the segmental wheel being slow, it is perfectly easy for the operator to adjust the speed of each tool without even stopping the machine, a feature never before embodied in a machine of this kind.

The belt shifter shown in cut has an inverted V-shaped head in close proximity to the inside face of this wheel, and the latter is adjusted with adjustable alternate studs to engage this head and thereby alternately shift the belt from the tight to the loose pulley. These studs are adjustable circumferentially of the wheel by means of securing nuts located in the circumferential grooves of the wheel.

The cam shaft extends longitudinally the full length of the machine and bears the cam drum which operates the cross slide, the cam drums for operating the wire feed and the levers for operating the belt shifter for reversing the head.



THE CLEVELAND AUTOMATIC SCREW MACHINE.

There is no belt on the spindle, which is driven by pulleys and gears arranged on a shaft parallel to and behind the spindle. These gears engage corresponding gears on the spindle, directly at one end and through an intermediate gear at the other, so that a single belt running continuously in one direction will, when shifted from one pulley to the other, drive the spindle alternately in opposite directions, as is required in threading a screw and backing off the die. These gears are so proportioned that the speed of the spindle is greater when running in one direction than the other. The advantage of this will be apparent when threading a long screw, as the die may be run off the threaded screw at a much higher speed than is used in cutting the thread, and for certain operations in making the screw, for instance, cutting off the finished screw from the rod, may also be run at the higher speed.

By driving the spindle by these means the excessive wear caused by the pull of the belts, which has been found to be a serious source of trouble in ordinary screw machines, is avoided. The wear of the spindle being reduced to a minimum, the alignment of the spindle with the tools is preserved indefinitely, which is a very valuable feature.

The Harvey Process.

Hayward A. Harvey, the inventor of the method which bears his name, has just taken out a patent dealing with improvements on it. Thus far powdered charcoal has been employed as the material for supercarburizing steel for ordnance armor plate. Several objections have been experienced in its employment. These difficulties Mr. Harvey refers to as follows: It has been found necessary to deeply imbed in the powdered charcoal the metal to be treated, because of the tendency of masses of powdered charcoal to subsidence when heated. This has involved the employment of treating chambers of undesirably large vertical dimensions and corresponding increase in the hight of the furnace chambers. Another difficulty has arisen from the tendency of the finely powdered charcoal to fly off in dust when stirred or moved from place to place as it has to be when loading and unloading the treating chamber. It is also the fact that for some reason, the nature of which is not fully understood, when fine wood charcoal alone is used and is subjected to high heat, explosions occasionally occur. These explosions are forcible enough to blow off the cover of a closed receptacle, or if the receptacle containing the fine charcoal is not closed and the charcoal is covered with a layer of sand and a superposed layer of fire brick, a species of ebullition is observed to take place in the granular mass by which the mass is loosened so as to diminish the firmness of its compression against the steel which is to be supercarburized.

He claims to have overcome these difficulties now by forming the carbonaceous treating bed partly of finely powdered wood charcoal and partly of animal charcoal, using for that purpose the so-called "spent char" from sugar refineries. He states that 10 to 15 per cent. causes an observable diminution in the quantity of dust arising, and that 40 to 50 per cent. almost entirely prevents the escape of dust.

Machinery Exhibits.

The Cleveland Twist Drill Company

of Cleveland, Ohio, exhibit a full line of the classes of goods manufactured by them, consisting of twist and straight fluted drills, reamers of all kinds, taps and dies, hollow mills, milling cutters, standard mandrels, standard gauges, &c. Their space is located in Section 29, Column L-50; and, although the amount allotted to them was the greatest obtainable, it was much less than was called for by their application and entirely inadequate to the requirements of such a display as it was the original intention to make. The exhibit, therefore, is of necessity considerably reduced in extent, and while all the different classes of tools are represented, the full line of sizes of each, as regularly manufactured and carried in stock by the company, could not be accommodated. The selections of sizes, therefore, were made principally with a view to the design or symmetrical arrangement of the goods in the several showcases in which they are displayed. A platform of the regulation hight covers the entire space and upon this are erected the cases surrounding the four sides, the inclosed central space forming a booth, which is covered by a roof or canopy supported by columns of unique design. The entire structure is highly ornamental and presents a handsome appearance, which is hightened by the character of goods shown, their high finish and the tasteful manner in which they are grouped upon the black velvet background of the cases. The latter, upon three sides of the pavilion, are made double, and interested visitors are invited to enter the inclosure for closer inspection of those inside. None of the goods were specially made for exhibition, all having been selected from the general stock in the company's warerooms, and they may therefore be taken as a fair criterion of the quality of those offered in the market. All of the standard tools such as drills, reamers, taps and dies, &c., are made in two systems of sizes. For the English and domestic trade inches and their multiple fractions, of course, are used, while the Continental market requires the millimeter system. Both are shown in a large range of sizes.

In twist drills there is a great variety of styles, including straight, square, taper and screw shanks; drilling, countersinking and wood bit points; right-hand and left-hand twist, &c. In the straight fluted drill, there are the same varieties of shanks and points, and they are made for both right and left hand cuts. Though the range of sizes is not of the full line carried in stock, as previously explained, it is still very extensive and runs from the smallest jewelers' drill (No. 80 Stub's guage) to the ponderous 4-inch machine drill. In one of the inner cases are samples of special drills of unusual length—two of these being of $\frac{7}{8}$ inch diameter by 54 inches long. With them are two stay-bolt taps of same size, and together they form quite a notable feature of the exhibit, which is readily appreciated by those who understand the great skill required to produce tools of such extreme proportionate length, without impairing their accuracy as to size and straightness. Taps are shown in all the different styles in use, and of the full V, Franklin Institute and Whitworth threads. There is also a form of combined twist drill and pipe thread tap for drilling and tapping gas and water pipes under pressure. The class of reamers includes the solid and shell fluted hand reamer for standard sizing, expansion hand reamers, solid and shell rose reamers, and standard taper reamers of the various styles used for different kinds of work. While the display of milling cutters is large, it includes only such forms as may be considered standard and adapted to general work. A full line of sizes of lathe mandrels from $\frac{1}{4}$ inch to $2\frac{1}{4}$ inches is shown. These tools are made from the same steel as that used for the drills. They are carefully tempered the entire length and consequently ground to size. Hollow mills are shown of both the solid and adjustable forms and in a large range of sizes.

A useful tool recently placed on the market may be mentioned. It is called the Common Sense counter bore or facing bar, and consists of a straight cutter accurately ground and fitted to holder, in which it is held by countersunk point set screw. The holder fits the standard taper drill sockets, and the drive is obtained by slotting the end of the latter for the reception of the top edge of the cutter, thus relieving the holder of all strain and insuring against slippage. Two styles of holders for chucking twist drills are shown. They are fitted to the drill shank, and would appear to be a very efficient tool. The display, of course, includes a full line of drill sockets, shell reamer mandrels, drill gauges and numerous special tools applicable to the line of work for which the goods of the company are designed.

The Crosby Steam Gage & Valve Company

of Boston, Mass., are among the few exhibitors who were conspicuous on opening day by reason of having their displays in complete order for inspection. Their space, Section 25, Column K-22, is of good size and well filled with samples of the various lines of goods manufactured by them. All are taken from the regular stock, and only such articles as required special preparation in order to show their essential features are in any manner different from those on the market. The brilliant finish and variety of colors of the different metals used in their construction, as well as the symmetrical forms of most of the articles, render this display particularly attractive. Although without roof or overhead covering of any kind the space is well inclosed by the showcases containing such articles as would suffer from exposure. At the back is a case extending the full width of the space and about 10 feet high, and on each side, and joining it at right angles, are two others of same hight, but somewhat narrower. In these are tastefully arranged most of the pressure and vacuum gauges, revolution counters, clocks and other dial instruments. As a center piece there is a very elaborate and highly finished hardwood engine-room gauge board, containing a full set of five instruments, while surrounding them, arranged as closely as possible without marring the effect, are the various sizes of gauges, clocks, &c., the former ranging in sizes of dials from 2 to 16 inches, and the latter from 6 to 13 inches.

The pressure gauges are of three distinct types, all of which employ the elliptical section curved tube, but differ in the index-actuating device. There is the Bourdon gauge, in substantially its original form, in which the tube is fixed at one end to the inlet connection, while the other end is free to move from

the effect of internal pressure, and actuates the index by means of a pinion and segment gear. In this style the horizontal movement only is effective, as the vertical motion can only vibrate the link connecting the tube with short arm of segment, without changing position of the latter. In the second form, designated the Crosby Improved, the curvature of the spring tube, instead of being circular, as in the Bourdon, is bent in the form of a scroll or flat spiral of one complete revolution. It is attached at the middle of its length to the inlet connection, thus leaving both ends free to move by the pressure. In their normal, or no-pressure, position the ends range in a vertical line with the center of index, the right-hand one being a short distance below the other. These are connected by means of pivots to the prongs of a horizontal forked lever, the free end of which connects with the index segment by a suitable link. By this arrangement the vertical, or in fact any, motion of the ends of the spring tube must impart a vertical or effective movement to the free end of the forked lever, and therefore to the segment, the advantage being that as less motion is necessary from its being all utilized, a much stiffer spring may be employed, without decreasing the sensitiveness of the instrument.

In the third form—called the Improved Lane gauge—the spring tube is connected at its middle, but is circular in form, with a gap of about 30° between the free ends. A bent lever is connected by links at its fulcrum and short arm with the tube ends, while the long arm is pivoted to a straight sliding rack which engages the index pinion. There are many varieties of gauges of these three types, as the different purposes for which they are designed require certain modifications of details. Among those shown may be mentioned the ordinary stationary engine-room gauge, in dial sizes from 5 to 16 inches; the locomotive steam gauge, of 6 and 6¼ inches diameter; the duplex air-brake gauge, by which the air reservoir and train pressures are indicated separately through the medium of a red index for the former and a blue or black one for the latter. By this means the multiplication of instruments is avoided, and the engineer is enabled to note both pressures at a single reading. This style is shown in 3½, 4½ and 5 inch sizes. The hydrostatic gauge, ranging from 6 to 12 inches, is made to indicate pressures of from 1000 to 20,000 pounds per square inch, and is also graduated to give equivalent readings in tons upon the total area of ram, given at 8½ inches diameter. These instruments are provided with check valve, to prevent injury from the violent recoil due to sudden release of such heavy pressures. The altitude gauge, for showing the hydraulic head, or hight in feet of a column or reservoir of water or other liquid, is provided with an independent adjustible index, similar to that of an aneroid barometer, for marking the hight of water which it is desired to maintain. This is colored red. The working index is black, and shows the existing water level. Compound pressure and vacuum gauges are shown in several sizes, ranging from 3½ to 12 inches. These are graduated in the usual manner, from zero in mid position to right in pounds per square inch, and to left in inches of mercury. The combination water works gauge is graduated in feet of hydraulic head, and the corresponding pressure in pounds per square inch. An ammonia gauge, in sizes from 6 to 8½ inches, also compound, for pressure and vacuum, is provided with two spring tubes, with the object of increasing its sensitiveness, and also to prevent the liability to excessive vibrations of the index, liable to occur from use on compression ice machines. The pyrometer steam gauge is graduated for pressure in pounds per square inch, and for corresponding temperatures in degrees F.

Several special gauges are shown, among which may be mentioned the chemical, the gas governor, and the ordnance gauges. The latter is of unique design, the movement of index being confined to an arc of about 30°, and is eccentric to circle of case. Although originally designed for indicating the initial pressure of ordnance discharges and of the compression in pneumatic recoil cushions, it is well adapted to any service in which it is subjected to severe shocks, either from explosive or vibratory strains. This gauge is shown in but one size. The standard test gauge, shown in several sizes, is as accurate as care and skill in its construction can make it. The graduations are very fine, and occupy about 330° of the circle, in order to make the single pound spaces as wide as possible. The index point is very slender to admit of accurate readings such as are necessary in the testing and adjustment of service gauges.

Several sizes of engine registers or revolution counters are shown, including both the square and circular patterns and of six and eight wheels. By means of a releasing device these instruments are as well adapted for use on machines having a variable stroke as those in which it is uniform. They are also suitable for the highest speeds practicable in reciprocating engines. There is a large line of syphons, cocks and other gauge fittings and accessories of different patterns and styles of finish. A crank index is shown of the ordinary circular form, the graduations representing the quarters of the crank revolution. Where such an instrument is necessary, as in working an engine by hand when the crank is out of sight, this form of index is one of the simplest and least confusing, and cannot admit of mistakes except through the grossest carelessness. Engine room, marine and locomotive clocks are shown in several sizes and styles. Three movements are used, the Howard, Boston and Seth Thomas. The former is chronometer balanced and full jeweled. All of these makes are well known as thoroughly reliable timepieces. There are various styles of gauge-testing apparatus, from the simple plunger hand pump to the most elaborate and expensive pattern.

Fronting the central showcase is a cone of noiseless safety-valve nozzles of various sizes. The device consists simply of a finely perforated cap for the discharge, the openings having a combined area greater than that of the pipe. On the right of space is a large table containing a full line of sizes and styles of steam whistles. On a similar table, on left side, are shown a large assortment of different patterns of pop safety valves. A somewhat bewildering pyramid of Victory cylinder lubricators occupies a prominent position near the front. These include single, double and triple sight-feeds of all sizes. Fronting the aisle are two large showcases, containing a beautiful display of Crosby indicators, planimeters and all accessories and apparatus necessary for this important branch of steam engineering.

Upon a table in the center of the inclosure is what may be considered one of the most important features of the exhibit. This is the Bosworth feed-water regulator—an automatic device for the purpose of maintaining a uniform water level in steam boilers. The controlling principle of operation is the variable expansion of a horizontal brass pipe due to difference between the temperatures of the water and steam, with one or the other of which it is filled, according to hight of water in the boiler. On each side of the pipe, in the horizontal plane, is an iron rod, attached at inner end to a flange on pipe, and at outer end passing through a connecting yoke. In the center of the latter is a set screw (with jam nut) the point of which bears against the short vertical arm of a bell crank, the long horizontal arm of which transmits its multiplied movement to a spring-adjusted disk valve, which controls the action of feed pump. It will be readily seen that when the brass pipe is filled with water, as there can be no circulation to maintain its temperature, it must be rapidly cooled by the high thermal conductivity of the pipe; and the relative position of bell crank will then be normal. The iron rods, being free from contact with any of the heated surfaces, are subject to no appreciable variation of length from change of temperature, and the entire variation of the pipe is therefore effective if the adjustment of set screw in yoke be correct. The device is fitted to the ordinary form of combination water column, and in no wise interferes with glass water gauge or gauge cocks. The entire apparatus is shown, including the feed pump and Bosworth pump governor. Such parts of the regulator as require it are shown in central vertical section, which enables visitors to see its construction at a glance. The glass water gauge on this column is a sample of the Guilbert-Martin red reflecting tube, which may be considered an important improvement. The water level is indicated by an, apparently, red liquid, while above it the red is merely a comparatively thin stripe. This optical illusion is due to the magnifying power of the water filled tube, as compared with the empty portion of the bore. Boiler users will appreciate its importance.

Hugo Bilgram

of Philadelphia exhibits in Section 15, Column H-27, a number of miter and bevel gears, which are cut by his improved machines. The system employed is theoretically correct, and gives the true involute curve, uniformly at any and all points in the length of the tapering teeth, which, of course, can only be done by the use of a reciprocating tool. A train of gears mounted upon a stand is furnished at each end with a hand crank, so that the wheels may be made to work as either driver or driven. At one end of train a spur pinion and gear transmit the motion to a bevel pinion of 12 teeth (about ⅝ inch mean pitch), which drives a gear of 44 teeth. This, in turn, meshes into a third wheel of 30 teeth, which is necessarily set on a line of axis which will enable the angles of radial pitch lines to correspond with those of the second gear. The motion throughout the train, regardless of the direction or end from which it is driven, is perfectly smooth and noiseless, and absolutely free from back lash. Careful separate inspection of the gears in motion shows the bearings of teeth to be uniform throughout their length, and that the maximum number possible for the given number of teeth are actually engaged and in effective working contact. The amount of friction is surpris-

ingly small, and the close approximation to the true rolling motion of the surfaces is shown in the almost imperceptible marking of the teeth. This should insure great durability and freedom from back lash due to wear from long service.

A pair of miter gears of about 6 inches mean pitch diameter are mounted with driving cranks on both shafts. The mean circumferential pitch is about ½ inch, and the faces of wheels not less than 6 inches. The teeth are cut slightly spiral, being tangent to a circle of about 1½ inches. Given a quick motion, by hand, the friction and back lash are so slight that they will run for several minutes before coming to rest, and are absolutely noiseless. The direction of motion has no appreciable effect on the result. Another pair of miters of 18 teeth and 2½ inches face, with maximum pitch of 1 inch, have the teeth cut spiral (tangent to a circle of about 2¼ inches diameter) and show apparently equally good working qualities, regardless of the direction of motion. Upon the columns supporting the roof of pavilion are hung three lines of shafting, driven from pulley on one line, and the transmission to the other two at right angles with each other is by means of the despised miter gears. To judge from the noiseless manner of their running, however, it would seem that the universal introduction of gearing cut by this system might be a very efficient means of settling the vexed question of how to turn a corner. The gears used on these shafts are of 16 inches diameter. One pair is inclosed in a cast-iron casing, arranged to be readily removed. The second pair is left open to show its operation.

The Page Belting Company

of Concord, N. H., are located to the north of power plant, in Section 15, Column F-27. The display, while not very extensive as to number of items in the pavilion, is important from the great size and fine quality of some of the larger class of belts. They show what is claimed to be the largest leather belt ever manufactured. It is of three thicknesses of leather (over ¾ inch) and required in its construction no less than 569 hides. The size is 8½ feet wide by 203 feet long; and its weight 5176 pounds, or over 2½ tons. The leather is thoroughly water proofed, and there is no apparent difference in the quality of surface of the two sides. Two large showcases, forming the back and one end of pavilion, contain full rolls of the different kinds and sizes of belts made by this company. A large center table in the pavilion is covered by smaller samples of these goods, which can be freely handled and examined by visitors. The pavilion is fitted up as a reception room and is handsomely carpeted and furnished. A large number of the belts in use throughout the department of machinery were furnished by this company. Among them may be mentioned one 72 and one 78 inch, driving the two tandem Westinghouse dynamos run by the Allis quadruple-expansion engine. The dynamo (same size and make) run by the Fraser & Chalmers triple-expansion engine, is furnished with a 66-inch three-ply belt. Two 24-inch double belts are used for driving from the 400 horse-power W. C. K. & Co.'s engines to the 4000-light incandescent dynamos. Two Ideal high-speed engines are provided with 30-inch Acme link-leather belts, driving line shafting. In the Electric Railroad power station is used a 48 inch double plain belt. All of the belts used in Electricity Building by the General Electric Company and all in Agricultural Building for driving line shafting are furnished by this company. A peculiar tandem combination used for driving two dynamos from one motor consists of an inner Acme link 10 inches wide and an outer Eureka double leather belt 7 inches wide. These are running together in a perfectly satisfactory manner. An Acme link belt 60 inches wide is displayed as an exhibit in Electricity Building. There are numerous other belts of smaller sizes in use throughout Machinery Hall. All of the wide belts driving the large dynamos are required to run at a speed of a mile per minute, those on the 2000 horse-power Allis engine making about 5600 feet. Notwithstanding this high velocity the alignment of the belts is perfect, there being no perceptible variation of their positions on either driving or driven pulley. From the method of joining the ends the lap is perfectly uniform with the body of the belt, which insures smooth running and absence of vibration, which is impossible to obtain from belts joined by the old method of lacing or riveting. All sizes of electric belts made by the company are put on in this manner.

William E. Leard

of New Brighton, Pa., has an apparently unattended exhibit of connecting rod stub ends. The manufacture of stub ends as a commercial specialty is a somewhat unique idea, though certainly it would appear to be a good one, as being made on the system of duplication of parts by the use of special machinery and facilities best adapted to the various operations they can be produced far more cheaply and of better all-round quality than is possible in a shop having only the ordinary equipment. Of course, where the number used in any one shop is sufficiently large to warrant the expense of special facilities there would be no advantage in buying the goods, but such instances are exceptional. These stub ends, or "strap joints," as they are designated by the maker, are shown in 45 sizes, suitable for pins from ½ inch to 4 inches diameter, varying by ½ inch. There are two styles, suitable for rods having either round or flat bodies. In the regular line of goods only such work is done as is absolutely essential as fitting, all mere finishing being left to the consumer as an operation more properly within his province. An ample allowance of shank is provided for, permitting of welding to the body of rod without danger of injury to the completed portion of the work. Of course, the strap joints are suitable for any length of rod, as their sizes are necessarily made proportionate to diameter and length of pin for which they are designed. The standard patterns are of two styles, one having the ordinary shouldered gib and set-screwed key; the other having a nut gib in which the nut and washer are used in place of the shoulder on under side. The brasses are accurately fitted in strap, but are left rough in bore and on ends. The parts are well proportioned for giving ample strength, and the general design is neat and symmetrical. The materials used are hammered welding steel, and in the brasses a suitable mixture of new copper and tin. As all of the parts are accurately made to standard gauges they are interchangeable, and can therefore be readily replaced in case of necessity. The exhibit is located in Section 15, Column F-27, and is well worth the attention of manufacturers of machinery in which the use of connecting rods is required.

Artistic Wrought Iron.

II.

Wrought Iron in Ancient Times.

It may be of interest to trace briefly the history of the craft of working in iron with the hammer from the earliest knowledge we possess of it subsequent to the first recorded smith—Tubal Cain—down to the time of its latest decadence as an art, in the last century. We say its latest decadence, because the art of producing beautiful works in wrought iron languished and revived more than once prior to the general reawakening of art in the Italian Renaissance.

Although not so generally employed as were bronze and copper, owing to its want of pliability as compared with those metals, wrought iron was used in very remote times. The craft of the smith exercised over the primitive mind a fascination, and even a terror, which is evidenced in the legends clustering round the German Wieland and the smiths of British and Scandinavian legend. The fables of Vulcan and his Cyclops among the Latins and the Greek Hephaistos in classic mythology show the same spirit even among the more cultured of the ancient nations. And among some of the barbarian races of to-day, especially in Africa, travelers tell us that the smith is still regarded as a being apart. But turning from the realm of myth to that of history, we find that the Phœnicians and ancient Egyptians, those wonderful peoples to whom we can trace the first inception of many of our arts and sciences, both practiced the craft of iron working with the hammer. The metal so wrought they applied to the decoration of their immense statues and to the construction of small articles of use and ornament. The Greeks and Romans followed in their steps.

Excavations made by Loyard at Nineveh, Schleimann among the ruins of Troy and Halicarnassus, and Di Cesnola in Cyprus, as well as the explorations conducted among the ruins of the ash-buried cities of Herculaneum and Pompeii in Italy, have brought to light ample evidence that wrought iron was used to some extent for decorative and domestic work of an artistic character from 2000 to 3000 years ago. Wherever a higher state of civilization existed among the peoples of ancient times iron was wrought into articles of war, of husbandry, of domestic and culinary use. Such objects have been disinterred, too, as show its extensive application to purposes of ornament and decoration, demonstrating that at various times much attention was paid to the capabilities of hammered iron both in decorative and utilitarian directions. Perhaps the purpose to which this medium was most generally applied in the earlier years was in articles of warfare. Armor, swords, spears, shields and bucklers were very often forged from iron and these objects were frequently of high artistic merit in design and decoration. The craft of the armorer was, indeed, early held in high estimation; and the smith commanded considerable respect in the days when men fought hand to hand and foot to foot. Later on the smith's work was in fact elevated to the rank of an art. Suits of wrought-iron armor, sometimes in-

laid with the more precious metals, made by the early armorers were often worth a king's ransom; the handle of a sword or dagger, or the hammered ornaments on a shield, were valued at more than their weight in gold.

Mediæval Iron Work.

During the first nine or ten centuries of the Christian era, however, little advance was made in the art of forging which art flowed during the dark ages. A beautifully worked rood screen is known to have been made in the tenth century for the Cathedral of Auxerre in France. It is minutely described in the monkish chonicles of the time and declared to be of "marvelous delicate workmanship in iron." In the eleventh and twelfth centuries the art, as it then began to be considered, of the smith rose into great estimation. Some examples of grilles and screens of this period have survived which testify more perhaps to the skill than to the artistic taste of the craftsmen of the middle ages.

It must be remembered that in those times the workman did not possess most of the facilities now at his disposal. Iron was not obtainable in bars and rods as at present, and the smith of 700 or 800 years ago had a far more laborious task in forging his material to the desired size and shape than his modern representative has. Considering the disadvantages he labored under his work must therefore be regarded as admirable

Gothic Work

Although of correct design and containing much artistic merit, the Gothic

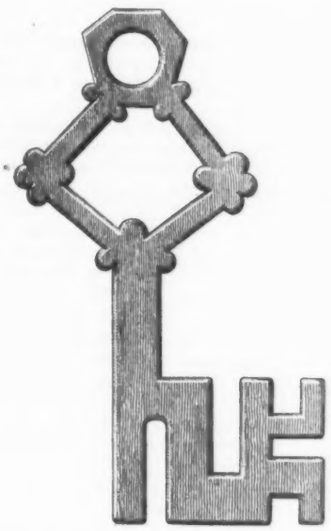


Fig. 6.—Wrought-Iron Key of Thirteenth Century.

Fig. 7.—Wrought Iron Thirteenth Century Knocker.

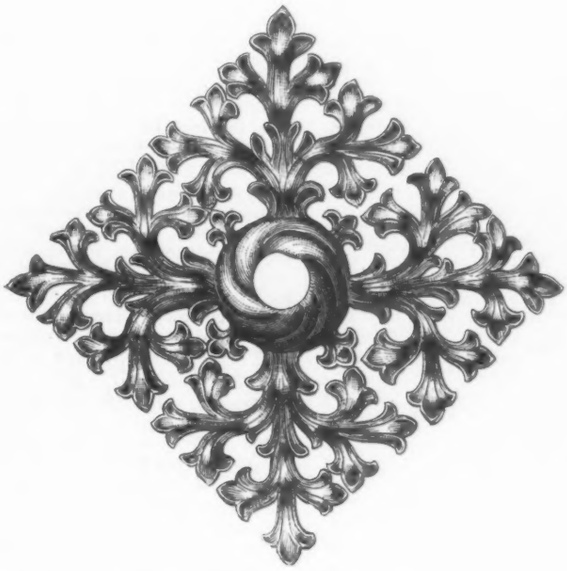


Fig. 8.—Wrought-Iron Door Plate, Fifteenth Century.

Fig. 9.—Wrought-Iron Andiron from Fifteenth Century Pattern.

ARTISTIC WROUGHT IRON.

iron; and it is not until about the tenth century that we can discover much proof of the artistic side of the smith's craft having been at all considered. At this period some wrought iron work, possessing evidence of artistic feeling, was produced in connection with ecclesiastical architecture, the only channel in

grilles of the twelfth century vary but little in general form. A plain frame work of iron forms the exterior border, while perpendicular bars or lattice work make the grille itself. These bars, sometimes twisted, or adorned with notches by the pincers, were ornamented with scroll work or leafy sprays of con-

ventional pattern. These were welded to the bottom bar and fixed to the uprights or cross bars with bands of iron, clamped on while hot. Some of the ornamental sprays, with foliage, are in the best taste. A great many remains of the wrought-iron work of this period are found in the ancient abbeys and cathedrals of France. Those screens made in the following century show a distinct advance. They were often composed of twisted ribands of iron bearing raised ornaments stamped out with a punch. These, instead of being fixed between the bars in the manner previously detailed, were welded on to the intersections of the bars, the grille being decorated on one side only.

Locks and Hinges in the Middle Ages.

Attention began to be given at this time to hinges, door locks and keys. The long strap hinges then generally used were often elaborately wrought extending over the whole width of the door and taking graceful curves and spirals. Birds, beasts, leaves and flowers in great variety were represented, terminating sometimes in elegant tendrils, and sometimes in grotesque heads. These hinges served the double purpose of ornamentation and to strengthen the joists of wood of which the doors were built.

The keys were quaint in form, but did not command the elaborate attention that was paid to their ornamentation at a later period. In Fig. 6 is illustrated a good example of a thirteenth century iron key which suggests the irregular wards of the flat keys of the present day, while Fig. 7 shows one of the lion head door knockers of the time, a type which was very common in connection with the Norman style of architecture—heavy, solid and grim, like the Norman castles and churches.

In the fourteenth century the process of welding the decorations on to the frame work was apparently found to be too long and in order to hasten the work recourse was had to iron bands in fastening the various details together. The locks and keys of this period are beautifully wrought and are frequently true works of art. The keys were sometimes made in the form of trunks of trees, the handle being composed of leaves and flowers boldly wrought. The keyhole was generally covered by a guard operated by a spring on pressure of a button. This keyhole guard was often made in the shape of a human figure or a grotesque animal. The box containing the lock was forged of one piece of metal, elaborately hammered into designs and decorated with foliage and flowers in relief. These details were welded together and attached to the box by small rivets. Sometimes the ornaments were finished with the graving tool.

A very favorable example of the production of this era is given in Fig. 8, which represents an ornamented wrought-iron plate for a lock or door handle of German fifteenth century make. It shows a delicate foliated design of somewhat stiff appearance cut and hammered out of sheet iron while cold.

Many examples of locks and keys of this epoch are preserved in museums throughout the world, as also are door knockers of the same period, which were treated very artistically. These objects were sometimes shaped into animals' heads, holding a hammer in the form of a heavy ring in the mouth, much as were those of the former period, which we have already noticed.

Andirons and Chests.

Andirons were another article of domestic use, the ornamentation of which received much attention in this century. The very first were of wrought iron, and they were sometimes made to represent the limbs of trees bearing twisted vines, with leaves and flowers welded on to the stem. More often the andiron, or fire dog, was shaped as a human being or an animal, the head being at the top and the legs terminating in men's feet or the paws of a beast.

The andiron, as every one is aware, was used in the old wide fire places to hold the logs and to prevent them rolling on the floor. Sometimes they were supplemented by smaller andirons called "creepers," which were also of wrought iron, with a lower front, only about 10 or 12 inches high, curving into a ball. But few of these articles have come down from very ancient times, the use they were put to being destructive of the object itself. Those made now are, however, close copies of original patterns from the fifteenth century down. In Fig. 9 is shown a modern-made andiron on the general design of those used in the latter middle ages. It is less elaborate, however, than were those above described.

But perhaps the most interesting fifteenth century work is found on the small coffers or treasure chests so much used at that time, the wood of which was usually covered with leather, and this again clad with iron, elaborately wrought in decorative designs formed of a number of pieces of sheet metal cut out, stamped and welded together. These chests yet exist in considerable numbers, and are highly prized.

The Gothic style in wrought-iron work, which still prevailed toward the close of the fifteenth century, became more mechanical, little or no originality or artistic feeling prevailed in the production of this period, and wrought iron work as an art fell off in merit. Sheet iron cut into patterns and applied flat replaced the plates of hammered iron welded together which marked the decoration of the earlier, original, and more pleasing work. The art was awaiting a regeneration, which was to arrive in the early part of the following century in the shape of the Italian renaissance, which period will be treated in our next article.

Pittsburgh Business Returns.

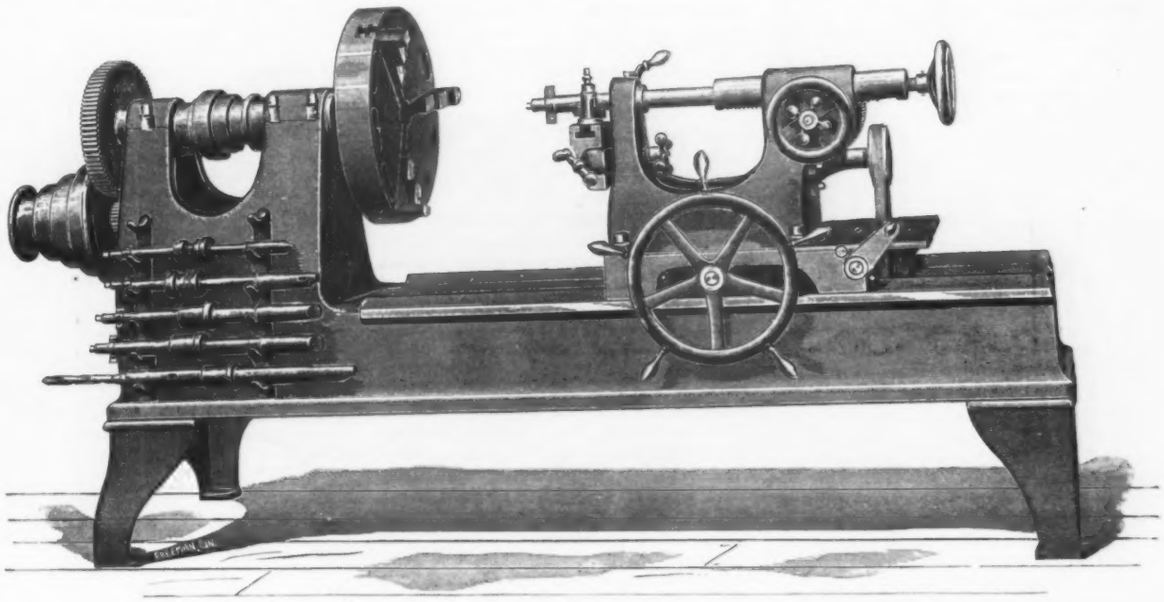
All persons or firms engaged in mercantile pursuits in Pittsburgh are required to make a sworn return each year of the gross amount of business done, in order that an assessment may be made for the purpose of levying a business tax. In some cases firms refuse to make such returns, and in these cases the city officials fix the amount of business done by said firms, basing it on returns made in previous years, or in any other manner which they deem proper. The amount of business done by Pittsburgh firms for the year commencing April 1, 1892, and ending March 31, 1893, has just been made public, and we print below the returns as made by the firms in that city engaged in the manufacture of iron and steel and other like commodities, as follows:

Armstrong, McKelvey Lead Company, lead	$175,000
Atwood & McCaffrey, foundry	308,489
A. M. Byers & Co., iron	875,832
U. Baird Machinery Company, machinery	130,000
H. L. Childs & Co., mill supplies	215,000
Crescent Steel Company, steel	420,000
The Harmes Machine Department, machinery	100,000
The Shook-Anderson Machine Company	120,000
Singer, Nimick & Co., iron	1,063,339
S. Severance, spikes	179,000
Smoky City Boiler Works, boilers	100,000
The Chartiers Oil Company, oil	100,000
The Birmingham Iron & Steel Company, iron and steel	100,000
Chas. A. Turner, mill supplies	125,000
Wm G. Price & Co., plumbers	225,000
Pittsburgh Supply Company, oil well supplies	525,000
Riter & Conley, boilers, &c	1,016,871
Wightman Glass Company, glass	300,000
Jos. Woodwell & Co., hardware	208,701
Neal Bros., iron and steel	100,000
Oil Well Supply Company	300,000
W. W. Lawrence & Co., paints	280,168
Mansfield & Co., brass	200,000
McGinniss, Smith & Co., heating apparatus	100,000
John Dunlap & Co., tin	240,000
John Hamilton, tin	300,000
Apollo Iron & Steel Company, iron and steel	100,000
Bovaird, Seyfang & Co., oil well supplies	100,000
Pittsburgh Testing Laboratory, chemicals	100,003
Pennsylvania Tube Works, iron	1,982,040
Reineke, Wilson & Co., gas fixtures	125,000
Robinson-Rea Machine Co., machinery	600,000
Revere Rubber Company, rubber	100,000
Wilson, Snyder & Co., pumps	275,000
The Kelly & Jones Company, steam fitters	250,000
James B. Scott & Co., tin plate	468,374
The Merchants' Electric Company	100,0 0
Bradley & Co., stoves	100,000
Clinton Iron & Steel Company, iron and steel	550,000
Frick & Lindsay Company, mill supplies	100,000
National Tube Works, iron	200,000
A. Garrison Foundry Company, foundry	515,765
Jones & Laughlins, iron and steel	5,500,000
Wolff, Lane & Co, hardware	278,486
Weldon & Kelly, gas fixtures	125,000
Bindley Hardware Company, hardware	600,000
Demmier Bros., hardware	335,000
Carnegie Steel Company, limited	9,582,328
Bailey, Farrell & Co., lead pipe	450,000
Bryce, Higbee & Co., glass	150,000
Benny Bros, machinery	150,000
Babcock & Wilcox, boilers	200,000
National Lead & Oil Company, white lead	1,000,000
McClure Coke Company, coke	100,000
Dilworth, Porter & Co., railway supplies	1,500,000
Lyle & McCance, hardware	127,000
Hartley-Rose Belting Company, belting	200,000
Steel and Iron Imp. Company	100,000
Speer White Sand Company, sand	100,000
J. L. Hays & Co., electric supplies	100,000
H. K. Porter & Co., locomotives	437,620
Robbins Electrical Company	100,000
Standard Mfg. Company, plumbers' supplies	219,529
Pennsylvania Lead Company, lead	441,750
Welsh, Gloninger & Maxwell, fire brick	100,000
W. A. Giles, engines	100,000
Nease, McLain & McGinnis, hardware	120,000
Brown & Co., steel	800,000
McWhinney & Co., hardware	200,000
H. Lloyd's Sons & Co., iron	411,912
Mackintosh, Hemphill & Co., founders	890,870
Westinghouse Electric Company	3,000,000
Jos. C. Lindsay & Co., hardware	315,000
Logan, Gregg & Co., hardware	600,000
Mansfield Coal & Coke Company	100,000
James Rees & Son, engines	161,046
Philadelphia Company, natural gas	1,505,802
Electrical Supply & Construction Company	200,000
Harbison & Walker, fire brick	802,408
Bissell & Co., stoves	176,000
Singer Sewing Machine Company	100,200
Standard Sewing Machine Company	175,000
I. N. Scott & Co., agricultural implements	200,000
Scoble & Parker, agricultural implements	205,100
A. Speer & Sons, plows	184,328
John Hall, Jr., & Co., agricultural implements	130,000
Consolidated Steel Company, wire	100,000
Standard Underground Cable Company	621,901

Zug & Co., iron	795,700
Schoenberger & Co., iron	2,613,000
Howe, Brown & Co., steel	100,000
S. Jarvis Adams & Co., foundry	180,000
Jarecki Manufacturing Company, pipe	125,000
Hainsworth Steel Company	1,000,000
Cold Rolled Steel Company, steel	250,000
Hubbard & Co., shovels	151,714
Hydraulic Machine Company, machines	100,000
Carbon Steel Company, steel	400,000
Wm. Clark's Sons & Co., iron	1,000,000
Iron City Tool Works, tools	158,136
McCullough, Dalzell & Co., crucibles	200,003
Pittsburgh Malleable Iron Company, iron	154,869
Pittsburgh Bridge Works, iron bridges	271,660
Keystone Rolling Mill Company, iron and steel	848,550
Linden Steel Company, steel	698,816
Moorhead - McCleane Company, iron and steel	914,567
A. French Spring Company, springs	1,180,000
Westinghouse Machine Company, machinists	450,000
McConway, Torley & Co., iron	1,477,000
Schiffler Bridge Company, bridges	500,000

The Streit Boring Machine.

The Streit boring machine is provided with an automatic feed stop which prevents the chuck from being injured by the cutters; also with a head which is clamped to the front of the carriage, as shown, when it is desired to face off or recess the work, the head being removed when not in use. The spindle is bored Morse taper and is furnished with a screw and hand wheel to force out the bars, no drift being used. The bars can be placed in the machine between the front rest and spindle bearing without moving the carriage after it has been set. The bushing is clamped in the rest and the spindle is run back by means of the hand wheel and rack shown till the cutter strikes the bushing. This construction forms a rigid bearing for the cutter bar immediately behind the cutter when the cut is started, and insures true work whether the cores are true or not. This machine, which is made by A. Streit & Son of Cincinnati, Ohio, will bore from ¼ to 6 inches in diameter and weighs 2000 pounds.



THE STREIT BORING MACHINE.

Seaman, Sleeth & Black, rolls	435,000
Marshall Foundry Company, founders	521,593
R. Munroe & Son, boilers	250,000
L. M. Morris, foundry	216,068
Park, Bro. & Co., steel	2,048,546
Pittsburgh Steel Casting Company, steel	204,072
Scaife Foundry & Machine Company, foundry	114,738
Totten, Hogg & Co., foundry	158,300
Oliver & Roberts' Wire Company, wire	1,800,000
Oliver Iron & Steel Company, iron and steel	2,000,000
Koehler & Strong, scrap	165,000
Morris & Bailey, steel	138,000
East End Electric Light Company	123,492
Phillips, Nimick & Company, iron	708,975
Union Foundry & Machine Company	150,000
M. Lanz & Son, nuts, bolts and bricks	125,000
Lewis Foundry & Machine Company	271,677
S. McKee & Co., glass	196,109
The Klein-Logan Company, tools	100,000
C. J. Reiling, iron railings	100,000
Marland, Neely & Company, nuts and bolts	108,698
Phillips Mining Supply Company	100,000
Republic Iron Works	600,000

Commissioner of Labor Drage reports that the industrial products of all the penal institutions of the United States amount to 0.54 of the total manufactured products of the country.

The strike of dock laborers at Hull, England, which at one time threatened to extend to other of the British ports and cause as grave hindrance to shipping and commercial business as did the great strike of London dockers some time since, was ended in a complete fizzle. The dockers have surrendered unconditionally, and will only be taken back as vacancies occur. Employers retain the power to dismiss or refuse employment to any man who intimidates non-union or union men. None of the points for which the men went out on strike have been gained; so that their suffering and pecuniary loss have been for no purpose, except to gratify the vanity of the agitators. The causes of the strike were not sufficient to justify such a course of action as was resorted to, and the lawless methods used during its progress, in the way of incendiarism, mob violence and intimidation, alienated from the men the sympathies of the general public, and brought about the collapse which has taken place.

The Torpedo-Boat Force of Foreign Navies.

One of the most interesting features of Lord Brassey's *Naval Annual* for 1893, recently published in England, is an elaborate analysis of the torpedo-boat flotillas of the navies of the world, prepared by W. Laird Clowes, a well-known authority on the subject

In presenting a summary of the torpedo-boat strength of various nations, length is adopted as the basis of classification, as affording the best single standard available, since the length is generally proportionate to the displacement, the sea-going qualities, the steaming radius, the power of the engine, the force of the armament, and most of the other factors which combine to affect the efficiency of such craft. Official systems of classification are all to some extent artificial and differ so greatly that an attempt to conform to them in any summary statement would result in confusion. In the British Navy some boats assigned to the first class are but 87 feet long, displacing only 28 tons and having a speed of less than 20 knots, while France has boats of very much the same character but ranks them as of the third class, and neither in France nor in Germany are boats less than 118 feet long admitted to the first class.

Omitting all torpedo vessels, or torpedo catchers, and considering only torpedo craft of less displacement than belongs to the smallest of the torpedo gun vessels, or catchers, the first to be noted are termed "destroyers," having a length greater than 150 feet. Of these, including boats ordered, but not yet completed, Great Britain is credited with 20, Russia with 14, Italy 13, Germany 10, France 9, Turkey 2 and Japan 1. In displacement the boats exceeding 150 feet in length and here termed "destroyers" range from 100 to 300 tons, or perhaps somewhat more in a few cases. They can make passages of considerable length at sea, but are not regarded as suitable for operating at any considerable distance from their base. In some navies they do not form a separate class, but as first-class torpedo boats are grouped with others,

smaller in size, which are also regarded as sea going boats.

Of sea-going torpedo boats with lengths of 126 to 150 feet, Italy has 86, Germany 64, Great Britain 43, Russia 38, France 36, Austria 24, and a number of other nations have smaller numbers, the United States being credited with 2.

Passing by the further subdivisions in which smaller torpedo boats are grouped, the results for several nations may be summarized as follows, omitting here some of the less important powers:

Nation.	Boats of 101 feet and above.	Boats of 100 feet and under.	Total.
France	185	44	229
Great Britain	93	93	186
Russia	58	108	166
Germany	137	16	153
Italy	103	29	132
Austria	29	34	63
Spain	38	9	47
China	28	15	43
Netherlands	18	25	43
Japan	21	20	41

The total number, for all nations owning torpedo boats, is 1329.

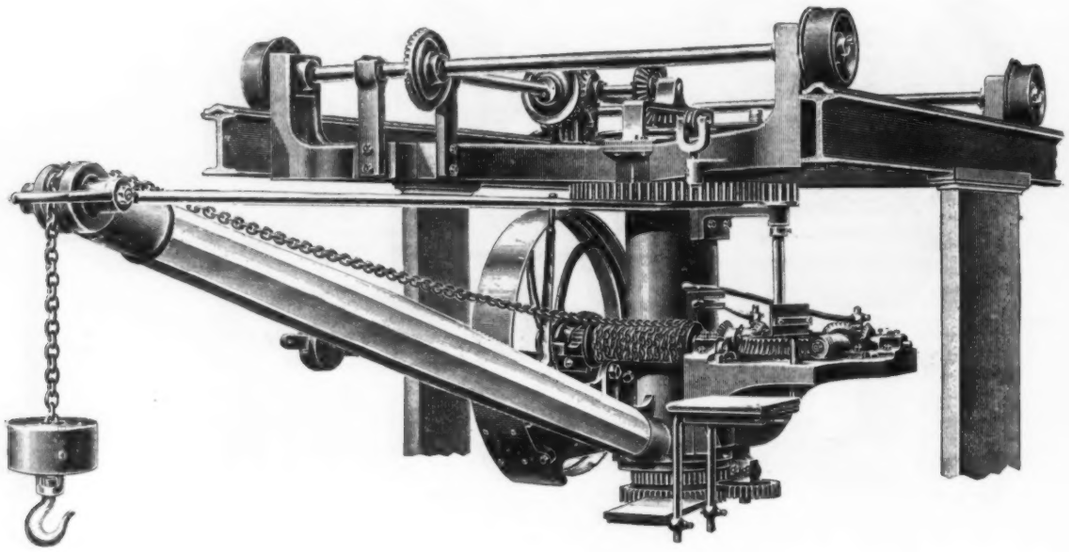
fuel, were particularly favorable, and it was found that the boilers suffered very little, even when the boat was pressed. The system employed in this boat is the invention of an Italian engineer. The boilers of a number of Russian first-class boats are fitted for using liquid fuel.

The degree of protection afforded to ships by torpedo nets seems now to be a matter of some doubt. Net cutters, intended to be fitted to the heads of torpedoes, have been successfully experimented with, if the published reports are reliable, and it is said that they have been definitely adopted in some foreign navies. These cutters are scissors-like appliances. Torpedo nets are still supplied to ships, however.

Nearly all the German boats are fitted with tubes for air impulse in discharging their torpedoes, while the torpedo ejectors of all the French boats are fitted for gunpowder impulse. Several navies appear to be inclined to adopt cordite or ballistite or other smokeless powder, for impulse purposes.

same time, a battery of rapid-fire and machine guns is provided of sufficient power to penetrate easily the hulls of torpedo boats. The size of the torpedo vessel must be sufficient to enable her to keep the sea with safety, but not so great as to expose an unnecessarily large target to an enemy. Other essentials are light draft and high speed. In displacement, it may be said in general terms that they range from about 300 or 400 tons to about 1000 tons. It was by two such vessels that the "Blanco Encalada" was sunk in Caldera Bay during the Chilian civil war in 1891, their torpedoes taking effect and the assailants escaping practically uninjured.

Lord Brassey expresses the opinion that the only small vessels which should now be laid down for the British Navy are these torpedo gun-boats, as he terms them. They are, in his opinion, indispensable auxiliaries of the heavy armored ships, and acting independently they may be used as sea-going torpedo boats, as commerce destroyers, or as blockade runners.



RADIAL JIB TRAVELING CRANE.

Boats of less than 100 feet in length are of comparatively little use for work at sea.

The fastest torpedo boats which have yet been actually built and tried are Schichau boats of certain types, some of which have done 27.4 knots. The fastest British torpedo boats do not compare favorably with the best of other nations, some of the latter having been built in England, however. But large boats, or "destroyers," have now been contracted for by the Admiralty which are to make 27 knots. In France, Normand is building a boat which is expected to show a speed of 30 knots, at which rate two flotillas sighting each other at a distance of 10 miles might be in collision in a little more than eight minutes.

With coal as fuel, the attainment of high speed by torpedo boats is accompanied by the production of flame and smoke to such an extent as would almost inevitably lead to their detection. For this reason, as well as for various others, elaborate experiments have been made abroad looking to the use of petroleum as fuel for such craft, and promising results have been reported. The trials in the case of Italian boat No. 104, fitted to use petroleum residuum as

As illustrating the sea-going powers of a few of the larger boats, the case of the "Murature," built in England in 1890 by Thornycroft & Co. for the Argentine Government, may be cited. On the passage out from England she encountered heavy gales, and at one time a sea striking her on the quarter caused her to "broach to," but on the whole she behaved well and shipped very little water. She ran from Pernambuco to La Plata, a distance of 2390 miles, without stopping, at an average speed, under one engine only, of 9.5 knots. It may be of interest to add that the behavior of this boat in water of different depths affords a remarkable example of the effect of shallow water in decreasing speed. She is of very flat after section. It is reported that one day, coming down the Parana river in 60 feet of water, the "Murature" was making 20 knots; half an hour later, being in 15 feet of water, she could make but 15 knots with the same number of revolutions as before.

A type of torpedo craft larger than those which have here been under consideration is the torpedo vessel, or torpedo catcher, in which the primary arm of offense in an engagement with heavier vessels is the torpedo, while, at the

The earlier attempts to produce vessels of this type, dating back to 1870, were not very successful, owing to deficient speed and other defects, and really serviceable vessels of this kind have only been built within the past few years.

Radial Jib Traveling Crane.

From a recent issue of *Industries*, London, we take the engraving here presented of a special rope-driven traveling crane constructed by John Pickles & Son, Royd Iron Works, Hebden Bridge, near Manchester. This crane is complete with all the improvements the makers' practical knowledge could suggest. It is provided with motions for hoisting, lowering and revolving, and longitudinal traversing, all within easy reach and control of one attendant on the platform. As above stated, it is constructed to be driven by rope gearing, and is provided with friction clutches for the revolving and traveling motions. It has a friction hoist controlled by a lever, which also controls the lowering and brake mechanism. The speeds at which the various operations may be conducted are: Hoisting,

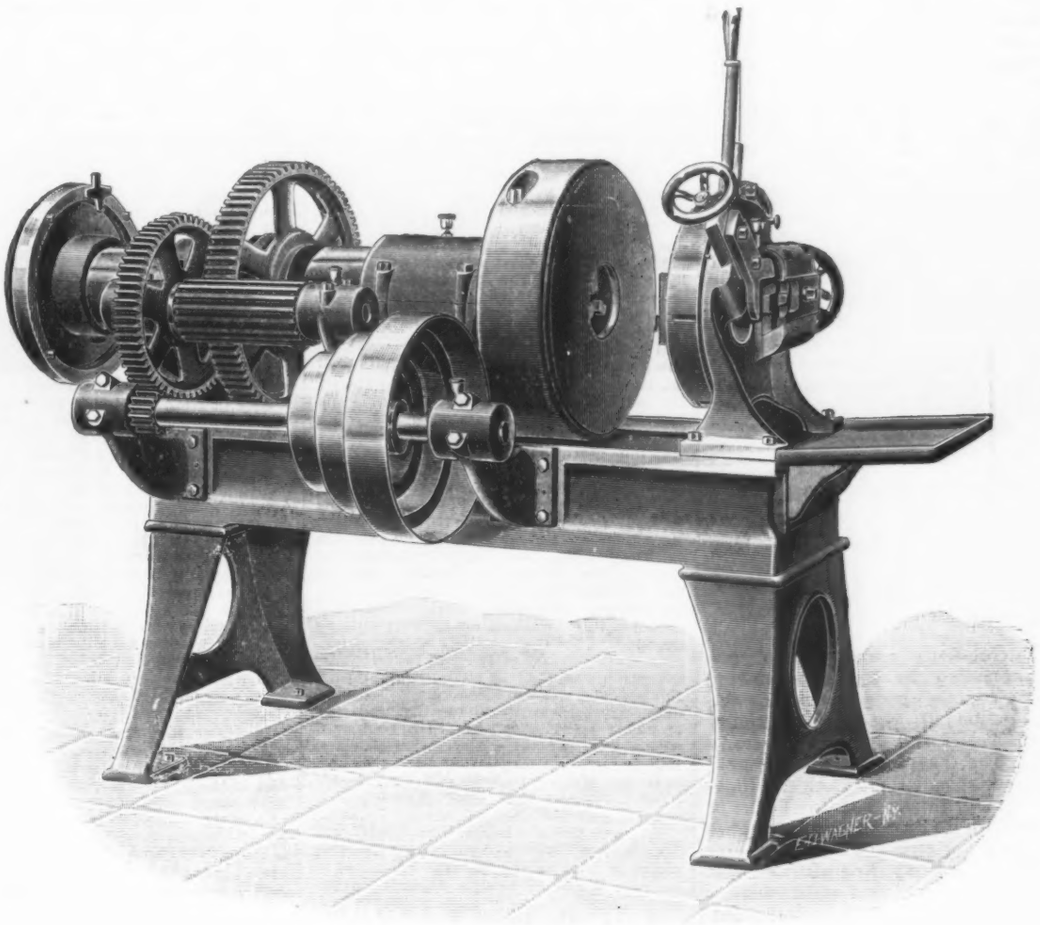
70 feet per minute ; longitudinal traverse, 100 feet per minute ; and radial jib motion, 1½ revolutions per minute.

This crane, as will be seen, combines a radial jib with an overhead longitudinal traverse. It frequently happens that a traveling crane is required in the center of a room where columns are placed. To these columns the longitudinal rails can be fixed for the crane to travel upon, and by means of the jib the loads may be lifted in the spaces beyond and outside the columns. This is an advantage possessed by this crane over others in which the range is limited to less than the width between the columns for lifting purposes. By the adoption of the jib motion not only is the full area preserved, but also the areas outside are brought within the sweep of the jib. Some idea of the capacity of the crane may be gathered from the fact that it can load and unload upward of 30 tons of goods per day, chiefly in cases varying in weight from 10 hundredweight to 30 hundredweight each.

The survey for a cable from the shores of California to the Hawaiian Islands has resulted in a route being chosen starting from Monterey Bay to Honolulu, in preference to a route connecting Point Conception, Cal., and Hilo Bay, Hawaii, which was laid out by soundings by the steamer "Thetis," U. S. N., some time ago. The way selected will require the smallest length of wire and passes over an even bottom of soil favorable for the protection and preservation of the cable, avoiding submarine mountains

Pipe-Threading Machine.

The Eaton, Cole & Burnham Company of 82 Fulton street, New York, make a pipe-threading machine which has countershaft and cone pulleys for regulating the different speeds to suit the size of pipe to be cut, and is furnished with adjustable dies. The die head, with its cutting-off attachment, is firmly bolted to the bed, thereby insuring the proper position of the dies. This die head is arranged with concentric chuck by which the dies are easily adjusted and thrown in or out of position at the will of the operator by simply grasping the lever handle shown in the engraving.



EATON, COLE & BURNHAM PIPE-THREADING MACHINE.

The concentric chuck shown has three steel jaws that are actuated by an eccentric ring, making the chuck at once powerful and convenient. This chuck is attached to a long hollow spindle, through which the pipe passes, and having a suitable centering arrangement at the back end. The spindle handle has long bearings of large diameter, and is easily moved backward and forward, carrying the pipe with it, being driven by the long pinion upon which, it will be observed, the large gear wheel slides. This machine will thread pipe from 1 to 4 inches in diameter.

The Government of Japan has in hand plans for the construction of 14 new railway lines. At present the railway mileage of the Empire reaches some 1500, of which 894 belongs to various companies. These, it is said, will be taken over by the State. Formerly the lines were built by British contractors, with material supplied from the United Kingdom, and were operated by foreign engineers, but now the State and private companies have their own Japanese engineers, and a great part of the railway material and rolling stock can be furnished from the national shops at Shinbasi, although there is still room for considerable foreign importation in this line.

Testing Deck Plate Piercing Shells.

On the 9th inst. tests were made at the Sandy Hook proving grounds of the Wheeler deck plate piercing shells. This shell differs from other conical shells mainly in the added strength and stiffness of its walls and in the tempering of the point. The hardening is so done as to distribute the shock of striking throughout the entire shell. This is designed to obviate the danger of its breaking before it has perforated the slanting protective deck of a ship.

Some time since 64 of these shells were submitted by the Sterling Steel Company of Pittsburgh, Pa., and two were chosen by the Board of Ordnance to be tested before the lot should be accepted. The gun from which they were fired is the 1886 model 12-inch breech-loading mortar. It is built of cast iron, is steel hooped and weighs 14¼ tons.

The plate at which the two shells were discharged was a low carbon, soft,

steel plate, 16 feet long by 5 feet wide. It was made by the Carnegie Steel Company of Pittsburgh, Pa., and was oil tempered and rolled down from 14 inches to a thickness of 4½ inches. In order to more exactly test it as a deck protector and to put the Wheeler shell to a severer trial, the plate was inclined at an angle of 60 degrees. Behind the steel was a backing of 2 feet of solid yellow pine, ribbed at intervals with strips of the same wood 12 inches square, the whole stayed up with immense beams running deep into the sand which had been heaped to form a secondary backing. The steel plate was fastened to the structure by 21 3-inch bolts. Across its face were painted ten circular targets in pairs 3 feet apart, the first and last being 2 feet from the sides of the plate. The target was placed 147 feet from the mortar.

The first shell, with an initial velocity of 905 feet per second and weighing 775½ pounds, struck the lower left hand portion of the plate, a large part of which was torn away. The wooden bucking was badly shattered. The body of the shell was broken, but as all the pieces had passed completely through the plate it was inferred that the hardened point had not been injured.

The second shell weighed 777 pounds and was fired at slightly greater speed. The plate was injured more than by the first shot. The shell was found uninjured, buried deep in the sand. The officers in charge of the tests considered the results to be very satisfactory, both for the shells and the plate.

New Publications.

KNOTS, SPLICES, HITCHES, BENDS AND LASHINGS. Illustrated and described by F. R. Brainard, Ensign, U. S. Navy. New York: Practical Publishing Company, 1893. $1.

A useful little pocket manual has been compiled by Ensign Brainard, giving concise instructions in the manipulation of the various knots, splices, bends and lashings generally used. The diagrams, numbering 127, which accompany the text clearly illustrate the directions given. Tables of the circumference, weight, and working and breaking strength of the various dimensions of hemp, iron wire and steel wire ropes will be found useful, while a glossary, at the end of the volume, presents definitions of the various terms used in connection with the operations of knotting and splicing.

The United States Court of Appeals, sitting in Philadelphia, has confirmed the decision of Judge Buffington given in favor of the H. C. Frick Coke Company in the suit of McKeefry & Hofius, operating the Graffton Furnaces at Graffton, Ohio. The decision is of interest to coke consumers, as it affirms the right of coke manufacturers to prorate their output among customers when they cannot furnish the full amount of coke contracted for, by reason of strikes or shortages of cars.

The report is current that Jones & Laughlins of the American Iron Works, Pittsburgh, propose to make important improvements in their facilities for rolling steel billets. It is stated that the plans aim at rolling direct from the ingot billets down to 1½ inches.

Early History of Wrought-Iron Gas Pipe.*

BY R. T. CRANE, CRANE COMPANY, CHICAGO.

The demand for wrought-iron pipe began with the invention of illuminating gas, but the introduction of illuminating gas at first was very slow in consequence of prejudice and want of appreciation of its importance. About the time of the invention of illuminating gas, which was in the latter part of the seventeenth century, the long war between England and France was drawing to a close. It had made a great demand for gun barrels, which were largely made at Wednesbury, England, and at its close it left a large amount of this stock on the market, which (there being no other demand for it) was used for the small gas tubes by screwing the small end of one tube into the large end of another. This supply apparently covered the demand for small tubes for some time and the larger ones were made in the same manner.

In order to understand the invention of gas-tube welding it is necessary to describe the welding of gun barrels. This consists of taking a properly prepared piece of iron of the right dimensions, drawing the edge down thin, heating it, then rounding it up until the edges lap one over another. In this form it is called "skelp." It is heated in a forge fire, a few inches at a time; then a bar of iron is put on the inside, to give support to the iron while it is being hammered down on the outside and the weld made. Then it will be seen that only a few inches could be welded at each heating of the iron, making the process a very slow one, and the barrel, when the welding was completed, was left in a very rough and unfinished state.

It appears, from the best information we can get that about the year 1825, and in order to meet the largely increased demand for gas tubing it became evident that some better mode of manufacturing gas tubes should be sought for than the process of welding gun barrels. James Russell, in company with his brother John (who had been gun-barrel and gas-tube makers at Church Hill since 1811) appreciating this fact, set about making an imroved gas tube. He concluded that it should be of a uniform thickness of iron, and also, as the pressure of gas was merely nominal, that there was no necessity of so strong a weld as that of the gun barrel. He conceived the idea, and patented it, of welding his tube by butting the edges of the iron together instead of lapping, as in the case of the gun barrel. This invention was a great step in advance of this art, and enabled him to make his tubes much more cheaply and rapidly, and also of vastly superior finish. Still, compared with a later process, a description of which will follow, this production was very slow, as he was obliged to heat and weld it only a few inches at a time, after the manner of welding gun barrels.

To make this gas tubing complete it was necessary to have a device for connecting pieces of pipe, as the method employed in the case of the gun barrels was not practicable in this case, the iron being of uniform thickness. He now invented the socket, which is a short piece of pipe with a thread on the inside to fit a corresponding thread on the outside of the gas tube, the pipe being screwed in each end of the socket, thus making any desired length of pipe. The effect of this improved process was to so cheapen and beautify the article as to greatly increase the demand for it, and it seems that the invention made a great sensation in England. But this particular process of manufacturing must have been very short lived, it being patented in January, 1825, since it was followed by the patent of Cornelius Whitehouse in Feoruary of the same year for butt-welding tubes by drawing them through a die. This method of welding tubes being brought to the attention of James Russell, he saw its importance, bought it and immediately proceeded to manufacture his tubes under this patent.

Mr. Russell recognized the principle of the strength of a circle—that is, when the iron for a tube is rounded up any amount of pressure may be brought to bear on the outside without danger of collapsing the iron, and this pressure was necessary to force the edges of the iron together in making the weld. His process of doing this was to heat a small piece of the iron, then place it between two semi-circular dies smaller than the iron which necessarily forced the edges together, thus making the weld.

To return to the Whitehouse patent, and to make clear the principles involved in it, it may be stated that he takes such dies as Russell used, makes one end of them bell-shaped and fits them in a pair of tongs. He then takes a piece of the rounded-up iron called "skelp" and puts about half its length in the furnace, heating it to the welding heat. The die is then pressed on the iron, and by means of an endless chain the iron is pulled through the die. The die being smaller than the iron crowds the edges together, thus making the weld.

The principle involved in the Whitehouse method consists in the manner of applying the pressure to produce the weld; that is, he produced it by drawing the iron through the die, and Russell by compressing the dies. So, to give proper credit for these advances in the art, it should be said that Russell is entitled to the credit of discovering that a tube with a butt-weld is sufficiently strong to stand all ordinary pressure, and that a sufficient pressure can be brought to bear upon the circle of the iron to produce the weld. Mr. Whitehouse is entitled to the credit of discovering that the pressure to produce the weld can be obtained by drawing it through the die, which is simply an improvement upon the principle that Mr. Russell discovered; yet it was an invention of very great importance, as it enabled him to make tubes a hundredfold more rapidly, and also of a superior weld and much longer. Strange to say, this process has never been improved upon, and is the one in universal use for the manufacture of the small tubes at the present time.

The result of the Russell and Whitehouse improvements is the production of an article of great utility and beauty at an exceedingly low cost.

As an evidence of the importance of the advanced process of Russell and Whitehouse it may be stated that they paid as much for welding the gas tubes under the gun barrel principle as the finished, vastly superior product, is being sold for to-day.

Lap-Weld Tube Making—The above mentioned events took place in the early days of gas engineering, and, while steam engineering was also being developed, it had not, up to this time, reached any great degree of magnitude. But now its importance began to be more particularly recognized in connection with the building of railroads and locomotives, and through the discovery by Stephenson of the tubular boiler. This created a demand for a larger and different line of tubes, for which the butt-weld was not adapted, as the tubes were required to be much larger, and stronger in the weld.

It was evident that the only way to produce an iron tube suitable for these demands was to make it with the lap-weld, as in the case of the gun barrel, and while it would have been possible to make lap-weld tubes of uniform thickness and moderate length by the methods employed in gun-barrel making, it is evident that the process would have been too slow and expensive in operation, and the product too limited in length to meet the demands of steam engineering.

At this time—which must have been in the neighborhood of 1830 or 1835—the Messrs. Russell appeared to have appreciated the importance of manufacturing a new line of tubing, and set about making the machinery necessary for it. To accomplish this was quite a different task from that of producing the butt-weld tubing, as it called for the highest order of mechanical skill and ingenuity, and there is no doubt that it cost the Messrs. Russell a large amount of money in experimenting before they perfected their machinery. They must have met with untold difficulties and annoyances in perfecting the machinery and furnaces, which only persons who have gone through similar ordeals, though having the benefit of their experience to commence with, can appreciate. They were certainly men possessing extraordinary courage and perseverance to contend successfully with apparently insurmountable difficulties.

About this time, or a little later, Martin Jones commenced experimenting in the same line. He also encountered many difficulties, exhausting his own and his wife's fortune, and in order to save something from the wreck, placed his invention in the hands of a friend, who betrayed him, appropriating it to his own use, improved it by continued experiments and patented it in his own name. He then took into partnership with him two gentlemen of large

* Read at the Steam Fitters' Convention, Chicago.

means, named Lindsam and Bowers, of Birmingham, where they established their works and produced the tubes on a large scale, there appearing to be at once a great demand for them. It is said that this purloiner of the "Jones" idea received for it during many years more than $100,000 royalty annually.

The difference between this and the Russell process appears to be only that the Jones made use of four rolls in the welding machinery and the Russell only two. The firm of Lindsam & Bowers, who were working under the Jones idea, brought suit against Russell for infringement of their patent, which developed into a bitter contest, involving the expenditure of $2,500,000 and resulting in victory for the Russells

The process of lap-welding is as follows: The sheet of iron is rolled to the desired thickness, width and length. The edges are then scarfed, as in the case of the gun barrel. It is then drawn, while red hot, through a bell-shaped die, by means of an endless chain, which rounds it up and laps one edge over the other. The whole length is put in the furnace and heated to the welding heat, afterward pushed out of the furnace at the opposite end into grooved rolls of a size corresponding to the size of the pipe. The inside lap is supported by a ball attached to a long bar of iron which holds the ball in position in the roll. The ball and the iron and the groove of the roll all correspond, so that the roll exerts a sufficient pressure upon the iron and the ball to force the laps of the iron firmly together, thus producing the weld.

The entire process must be perfect in order to insure success; that is, the bending and lapping of the iron, the heating of the furnace and the adjustment of the rolls and balls must all receive the most scrupulous attention. This operation is one of the most beautiful in all the mechanical arts.

After the process of welding, the crude piece of pipe is passed through other rolls to give it the correct diameter, and again through others for the purpose of straightening it.

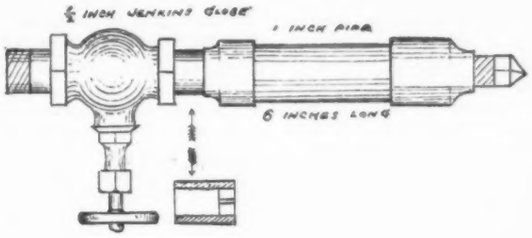
If the tubes are to be used in boilers they are only cut off the desired length and tested, being then ready for use. If the tubes are to be used for steam pipe, the ragged ends are cut off, screws cut on both ends and a socket put on one end. The tubes are then tested and are ready for the market.

Probably the production of no other line of goods has ever created such a sensation as this, and never were manufacturers so harassed by pirates in the trade as were the Russells. It is a satisfaction to know that they successfully combatted all oppression and were successful in maintaining their patent, and that finally success crowned their enterprise. invention, skill and perseverance. The firm conducted business for many years, through different combinations of the Russell family, under the name of the Crown Tube Works, Wednesbury, England. As to the magnitude of their business, it is stated that in 1824 they made but 3000 feet of tube, while in 1871 the number of feet supplied by the same firm reached the enormous figure of 6,700,000. This may give some idea of what the output must be of the 35 or 40 mills existing at the present day.

Four of the five members of the Rapid Transit Commission of New York have handed in their resignations to the Mayor, in which they state that the existing differences among the commissioners prevent the accomplishment of any results tending to improve the city's transit facilities which, in their judgment, will be equally advantageous to the public or to the city. The reason no conclusions could be arrived at or any scheme adopted was on account of the arbitrary action of the fifth member of the commission. Thus after two and a half years' deliberation the matter stands practically where it did when the commission was created.

Feeding Dixon's Dry Flake Graphite into Steam Chest.

The accompanying drawing shows the method devised by Frank Y. Fisher, engineer of the pumping station of the Dover (N. H.) Water Works, for feeding the dry flake graphite made by the Joseph Dixon Crucible Company of Jersey City, N. J., into the steam chest. In the nipple indicated by the arrows there is driven a brass plug, through which is drilled a $\frac{1}{16}$-inch hole. The cup is filled once in three days, and the steam takes care of the graphite. This has resulted in reducing the feed of cylinder oil one-half the amount formerly used. One cup is put on each high-pressure steam chest, and the exhaust carries the graphite over into the low-pressure cylinder and into the air pump. It is used three times and then discharged into the river, as it is not considered worth trying to save it to use over.



FEEDING DIXON'S DRY FLAKE GRAPHITE INTO STEAM CHEST.

San Francisco Notes.

The freight war still rages and lower rates are still the order of the day. The Oregon Pacific has cut rates to the Willamette Valley, Oregon, from this city to as low as 28 cents to 40 cents per 100 pounds. This in the case of hardware and merchant iron adds but a fraction to the value when said goods are carried around the Horn or over the Isthmus of Panama. It practically throws the trade of all Southern and Western Oregon and some of Eastern Oregon into our hands. Not to be outdone, the Southern Pacific has cut rates 10 per cent. lower. While the Union Pacific has named a flat rate of $1 a ton from San Francisco to Astoria, at the mouth of the Columbia River. A delegation of Oregon merchants has visited the city, who all declare that they will hereafter buy in the San Francisco market. We are now selling to a point 120 miles south of Portland, and I should not wonder if the capital of the webfoot State came even here to buy. A leading hardware merchant when asked, How can we extend the trade of San Francisco south as well as north? replied that we must be content to move slowly in the matter. Said he: Our house sold 40,000 kegs of nails last year. Now, we made nothing at all on them, or next to nothing. Now if we get them, as we are doing, 25 cents per 100 pounds less, we can either have that as a profit of that amount or we can sell just as much farther as that 25 cents per 100 pounds will go in freights. This will extend the trade considerably in other standard articles, such as locks, staples and screws, where length of the voyage does not make any difference. There is more of a difference in favor of our hardware merchants, and in these cases we can ship even farther into the interior. "We cannot," he said, "do everything at once, but we must come to it by degrees and only in this way can we recover lost ground." This gentleman was one of ten who clubbed together to secure Grace & Co. when they started the opposition clipper line. He was the second of the ten and was also one of those who attempted to secure lower freights by shipping from New York to Europe and back again to San Francisco.

Almost up to the present, business in hardware and metals has been quiet, even where merchants were hardly willing to admit of it. There has, though, been a change for the better since the date of my last letter, as the visit of the Oregon merchants, 150 of them, by sea and rail, has been made since, and though it was only to see what they could do in the way of trade, many of them purchased rather freely. Then there has been a general revival in trade. The number of buildings contracted for in the city for the month of May has been much larger than for the same month in 1892 and orders for building hardware are in consequence more liberal. We will soon have an outlet to Southern California as the Goodall-Perkins Steamship Line, as it is popularly known, is making preparations to carry freight to Southern ports at extremely low rates.

The importations by sea for the past two weeks have been very large, especially by the "Kewenaw," which came up from Panama loaded as heavily as it was possible she could be. The hardware, iron and steel carried on her will be distributed very widely over the coast, both north and south. It is, however, said that the rates at which goods are carried do not pay very well, but the promoters of the scheme will have to get used to it to see that it makes up to them in the lessened cost of their goods and the improved opportunities for trade, and, above all, they must put on larger and finer vessels and increase their capital so as to permit of the contest being carried out on more equal terms.

The pig-iron market has not been in a flourishing condition for some time past. The stock of English and Scotch has been reduced to a very low figure, and sells, when it does sell, at an average of about $22 per ton. American is in good supply and lower. A good deal has been sold at $19 per ton, but it would not be sold for less than $20 per ton now. Purchasers may be expected to keep strictly to consumptive needs.

Tin plate is in good supply, and sells at $5.80 to $5 90 for coke. Pig tin is dull at 22 cents. Nails are quiet, at prices which are without change. The reductions in freight rates have seriously affected the local production.

Electricity has been applied to surgery with gratifying results and promises to become an important element in that profession.

THE WEEK.

Magazine rifles to the extent of 52,000 have already been supplied to the British troops in India. It is found that the cost of ammunition for these weapons is almost double that of the old pattern rifles.

According to the latest returns of population there are 107,475 Chinese settled in the United States. Of these, 72,472 are in California, 9540 in Oregon, 3260 in Washington and 2935 in New York.

Four new lines of railroad will be shortly commenced in the Caucasian dominions of the Czar of Russia. They are intended for the purpose of developing the traffic between that country and Persia and Transcaucasia, which at present reaches a total of over 500,000 tons annually. It is stated that very rich deposits of copper are to be found along the route of the proposed railways.

The falling off noted in the yield of petroleum in Burmah is said to indicate a gradual exhaustion of the sources of oil supply in that country. There are now 602 petroleum wells in British Burmah.

Trade returns of Canada show a healthy expansion. The exports for April amounted to $3,889,662, or an increase of $271,261 over the corresponding month of last year. Imports for April were valued at $9,389,800, showing an increase of $1,414,600 over those for the same month of 1892. For the ten months from July, 1891, and July, 1892, to the following April the figures were as follows :

	July, '91- Apl., '92.	July, '92- Apl., '93.
Exports	$89,425,795	$93,527,602
Imports	89,876,146	97,312,740
Duty collected.	16,059,722	17,517,102

The gas well at Findlay, Ohio, recently struck on property belonging to the city, has a daily production of 18,380,000 cubic feet. Three glass factories have annulled their contracts to remove to Indiana, and the discovery is causing great excitement among the citizens, who predict a boom for their city.

The Germany army may be supplied with American beef if the Commissioners to the World's Fair, who have been making an investigation of the beef product of Chicago, make a favorable report.

Rumors are current in all quarters that some of the leading railroads are cutting under the agreed rate for transportation to the World's Fair. This is particularly true of the South and West, where a rate war is anticipated sooner or later.

It is stated that the new grain rates, which became effective June 10, although an increase on former tariffs, are responsible for an increased movement of corn and wheat from Nebraska points to the grain centers of the country. The claim is made that the increased tariff has served to justify the railroads in moving the grain.

The proposed establishment of a gold standard in India, and the practical demonetization of silver which would follow, is being vigorously protested against by merchants in China and the further East as likely to disturb all trade relations between India and those parts. Business in the China trade is already much hampered by the depreciation in value of the silver currency, which threatens to make certain lines of trade with Europe impossible.

The State Mine Inspector of Kansas reports several of the coal mines of Leavenworth County in an unsafe and dangerous condition.

Mexican railways, according to a Government report, covered in 1892 an aggregate length of 6546 miles, as compared with 654 miles in 1880 While the extent of the lines has increased tenfold during the last 12 years, the passenger traffic has just about doubled and the freight carried has augmented nine times during the same period. Earnings have increased from $6,317,908 in 1880 to $21,019,961 in 1892.

Henry S. Ives, who once bore the enviable title of the "Napoleon of Finance," is still heard of occasionally in railroad deals. It is asserted that his purchase of the Ohio Southern has resulted in its extension to Lima, Ohio, whence an extension to Toledo is being surveyed, which will give a direct outlet to the Northwest to the most extensive coal, iron and coke regions in Ohio.

The last survey has been made from Rochester to Wilman, Minn., a distance of 138 miles, for a new railroad, the main object of the road being to secure a direct Chicago line for the 15 cities of Southern Minnesota.

Conservative reports made to the Board of Trade at Fort Worth, Texas, estimate the wheat crop of the Panhandle region of Texas at between 7,000,000 and 8,000,000 bushels, and in addition to this the Indian Territory and Oklahoma will have, it is anticipated, a surplus of 3,000,000 bushels.

Since the discovery of gold in California the yield has amounted to a sum in the neighborhood of $1,500,000,000.

A cable to the New York *Times* says that cholera has undoubtedly reappeared at Hamburg and vicinity, and that six cases have developed at Marseilles in three days. It is reported that the plague has also invaded Southern France, while reports from several cities of Asiatic Turkey say that the cholera has appeared in many districts and is spreading rapidly. Along the lower Tigris and the Shat-El-Arab rivers people are dying by thousands, and whole villages have been deserted by those fleeing from the pest.

Reports continue to come to hand concerning the damage done by the recent floods in the West and South. The railroads have been the principal sufferers.

The first report of the Board of Equalization and Assessment of Cleveland, Ohio, shows a gain in the city's tax valuation of $4,079,896 for the year.

Fifteen dredges, 12 tugs and 30 scows are at work removing the obstructions in the Delaware River at Philadelphia.

New Orleans merchants are preparing a vigorous protest against a marked advance in the railroad rates on shipments from New Orleans to Alabama and Georgia points. The new tariff provides an exceptionally heavy increase in freight rates on rice, coffee, sugar and molasses, ranging all the way from 10 to 17 cents per hundredweight over the old tariff.

At the regular monthly meeting in June of the Chamber of Commerce of New York a resolution was adopted expressing the opinion of that body that the Sherman silver-purchase law should be repealed by Congress at the earliest possible date.

A crisis seems to have been reached in the affairs of the Reading Railroad Company, unless the bond and stock holders assent to the readjustment plan.

According to a report recently issued by the Texas Agricultural Experiment Station, the cost of raising cotton in the Lone Star State is considerably less than 6 cents a pound. The cost in Georgia is 7 06 cents, so that the report is very flattering to Texas. It is further claimed that cotton can be grown in that State at less than 5 cents a pound.

The floating debt of the Northern Pacific is $11,000,000.

The weather in the South has not been favorable for the cotton crop. The planting season opened much earlier than last year, but owing to the unfavorable weather the advantages gained have been generally lost and crop conditions at present are about on a par with those at this time last year. Taken as a whole, however, the prospects are somewhat better than they were a year ago.

Unofficial advices from members of the American commission at Paris in connection with the Behring Sea arbitration do not give any hope of an early termination of the present proceedings.

The Governor of New York has affixed his signature to the bill providing for the punishment of persons willfully procuring the publication of false statements. It cannot be denied that the financial scare from which we have lately suffered was greatly aided by the circulation of rumors having no foundation in fact.

The cultivation of beans and peas on cotton lands which have been overcropped is strongly urged on Southern farmers. Numerous varieties of these esculents are raised in India, China and Japan, which, apart from their edible uses, have other valuable properties, yielding oil and starch, while the stalks make an excellent fodder for cattle. These crops require little care, and some of them will grow on the poorest and sandiest soil.

It is reported that a special effort will shortly be made by the Mexican Government to induce immigration. A circular letter has been sent out to the land owners requesting them to make efforts to that end.

The establishment of new cotton mills goes along at a merry rate in the South. *The Manufacturers' Record* says that the activity displayed in this direction during the past 12 months is unprecedented, and that if the number of new concerns continues to be augmented at the same ratio as in 1892 the present year will see a still greater development of the industry. From January 1 to June 1, this year, there have been formed in the Southern States 60 new cotton-mill companies, many of whom have the erection of their plant well under way, while a number are already in active operation.

The new Krag-Jorgensen magazine rifle, adopted for the army, is to be made at the Springfield Armory, and the cartridges for it at the Frankfort Arsenal.. It is probable that enough of the special machinery needed will be in place in time to begin manufacturing about July 1.

The Iron Age

New York, Thursday, June 15, 1893.

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The Waste of Anthracite

Consumers of anthracite coal have a deep interest in the question which has been agitating the men of broad views among the colliery owners: How to lessen the waste in mining, preparing and burning of anthracite coal. It is only very recently that manufacturers on the seaboard, who have grown accustomed to make each succeeding purchase and sale at lower prices, have received with astonishment the announcement of an advance in the small sizes of anthracite coal, due to the greatly increased consumption. It has been often remarked that anthracite coal is altogether too precious a fuel to be dumped into a blast furnace, or be shoveled under a boiler. It may not be long before its industrial uses are confined to the sizes which cannot be burned in domestic fires. The territory which now depends upon anthracite as a manufacturing fuel must secure cheap coal, if it is to live in competition with other sections more highly favored. For that reason general interest attaches to every effort to reduce waste in the production and utilization of anthracite coal.

In 1889 the Legislature of Pennsylvania passed an act creating a commission to investigate the waste in coal mining, there being appointed J. A. Price of Scranton; Peter W. Sheafer of Pottsville, and Eckley B. Coxe of Drifton, Pa. The death of the two first named caused a good deal of delay in the work, Heber S. Thompson and William Griffith taking it up with Mr. Coxe, to whose earnest endeavors its completion is principally due. A neat volume just issued is the fruit of the labors of the commission. By far the greatest part of the report deals with questions touching chiefly the interest of producers. Thus an investigation is published concerning the probable percentage of the coal originally deposited in Eastern Pennsylvania which was left in the ground when the mining of anthracite first began. A. D. W. Smith figures out that it was 19,500,000,000 tons, of which 17,245,000,000 tons of marketable coal is still in the ground. It is estimated that the total coal won will not exceed 40 per cent. thereof, so that the supply is figured at 6,898,000,000 tons. With a production now of about 42,000,000 tons annually the future seems pretty well assured.

The commissioners deal carefully with the different sources of waste, unavoidable and otherwise, in the mining, the preparation and the shipping of anthracite coal, and note the improvements which have reduced it. They justly pronounce the most important saving of waste that due to the better utilization of the smaller sizes. Interesting experiments were conducted by John R. Wagner in the testing laboratory of Coxe Bros. & Co., on the burning of small coal with a forced draft. The conclusions are summarized as follows:

1. That the ashes produced by a steam jet were never as low in carbon as those produced by the fan; that is, an appreciably larger per cent. of the carbon was utilized by the fan blast. This appears to be due to the fact that when the carbon in the ash over the grate is reduced to a certain point the steam dampens it somewhat, and it ceases to burn sooner than it does when dry air only is blown through it.

2. That with the fan blast the rate of combustion per square foot per hour is greater than with the steam jet.

3. It was found that where a bed of coal was ignited and burned out, the percentage of carbon in the ash is much less than where coal is successively added to the burning mass. In practice it is not generally possible to allow the bed to burn out sufficiently before adding the cold, unignited coal. The result is a damping down of the fire, which causes the ash to cease burning sooner than it would do if there were no reduction of temperature and checking of the draft due to the adding of the coal.

4. There seems to be no doubt that the introduction of steam into the ash pit decreases materially the tendency of the coal to clinker on the grate in comparison with the fan blast or natural draft. It also changes the color, volume and character of the flame and increases the distance that the flame extends beyond the bridge wall. In many cases it is not practical, or at least it is very difficult, to burn the smaller sizes of coal without the steam jet on account of the clinkering. This effect of steam on clinkering is probably due to the fact that the steam, to a certain extent, moistens the ash close to the grate and prevents the ash from reaching there as high a temperature as it would with dry air. It is also probable that the decomposition of the steam into carbonic oxide and hydrogen, which takes place to a certain extent, and which, of course, is accompanied by a reduction of temperature, tends to prevent clinkering. The decomposition of the steam, accompanied by the formation of carbonic oxide and hydrogen, will probably account for the difference in the flame referred to.

5. A careful study of the burning of culm—that is, the burning of small coals with more or less dust in them—in these and other experiments, seemed to show that in almost all cases it is accompanied by a very high percentage of carbon in the ash, which analysis showed, in some cases, reached 58 per cent. Unless special precautions are taken to prevent it, a large portion of the fine coal runs down through the grate. When the culm gets red hot it acts almost like dry sand and works its way into the ash pit, thus increasing largely the percentage of carbon. Where coal has to be transported any distance, the value of the culm at the mines being very small, it is probable, from the investigations made, that it would be cheaper to remove the dust and transport only the larger coal.

6. It has been found that the percentage of iron pyrites, which occurs to a greater or less extent in all coals, increases very rapidly with the smallness of the coal. This is due to the fact that the iron pyrites occur generally in thin layers or incrustations on the coal. These thin layers are broken off and pulverized in the preparation and handling of the coal, and are therefore found to a much greater extent in the very small coal. It is, of course, well known that the presence of iron pyrites in fuel is very undesirable, as it generates sulphurous acid and has a tendency to destroy the grates or other iron work around the boilers, besides in many cases increasing the tendency to clinker.

7. That while the fan blast produces the best ash and gives a more perfect rate of combustion, yet in many cases it is more advantageous to use the steam blower on account of the clinkering, which may cause very serious trouble. In certain localities, particularly in cities, the noise of the steam blower is sometimes a disadvantage.

8. While it is not positively demonstrated, it is thought that the question of mixing small coals from different veins or different localities is a matter of importance. It would appear that sometimes two coals, each of which, when burned separately, gives reasonably satisfactory results, when mixed together clinker and give trouble, probably because the ash of the combined coals forms a much more fusible silicate than either of the ashes separately.

9. It would seem that the combustion of the small anthracite is more perfect when the coal remains undisturbed, or as nearly as possible in the condition in which it was put in the fire, instead of being turned over, so that the partially consumed and the unconsumed coal are mixed together.

When consumers learn to appreciate the fact that the furnaces and their appliances must be made to suit the fuel, the economical use of the smaller sizes of anthracite for manufacturing purposes will become more general, and important manufacturing interests will be favorably affected.

The Main Battery of the New Battle Ships.

The "Massachusetts," the first of the three battle ships now building for the new navy, was successfully launched last Saturday at the Cramps' yards. As these vessels were very fully described and illustrated in our issue of May 7, 1891, it is not necessary at the present time to repeat what was then published. It is now proposed to consider briefly the wonderful aggressive power these boats possess, and to show the weight of the projectiles which, at a single discharge, can be thrown to any desired point. Concerning the battery of the battle ships ex-Secretary of the Navy Tracy said that it "is the heaviest and most effective in battle carried to-day by any ship afloat or projected, and its disposition is such as to make it tell with terrific effect."

The main battery is composed of four 13-inch, eight 8-inch and four 6-inch breech-loading rifles. The projectiles thrown by these guns weigh, respectively, 1100, 250 and 100 pounds. The 13-inch guns are arranged in pairs in revolving turrets placed 80 feet from the center of the ship and 18 feet above the water. Each pair sweeps through a clear arc of 270°, forward and aft and on both broadsides, and each outside gun has an extreme range on each side of 140°. The fire of these four guns can, therefore, be concentrated on any object which is more than 45° to either side of the longitudinal center line of the ship. In other words, the guns on the stern can unite with those on the bow in firing at an

object which is ahead and on either side of the center line more than 45°.

The eight 8-inch rifles are arranged in pairs in turrets, located two on each side, and at an elevation sufficient to admit of their firing over the turrets of the large guns. Each pair has a range through an arc of 164° and each forward pair can fire at an object astern and at an angle of more than 30° with the center line. The same is, of course, true with the stern guns when the object is ahead. Four 8-inch guns can combine their fire with that of all the 13-inch at an object located broadside and within an angle of 90°. Also four 8-inch guns can combine with two 13-inch on an object directly ahead or astern.

The four 6-inch guns are placed in sponsons, two each side, and near the center of the ship. Each forward one can fire 5° to the opposite center line and then through a broadside range of 140°.

We therefore find that, at a single discharge, 3200 pounds of metal can be fired at an object 14° to either side of the center line from two 13-inch and four 8-inch guns, and 3400 pounds can be fired at an object 5° to either side, this being what we may term the overlapping angle of two 6-inch guns. The tremendous power of the vessel is best appreciated when we take into consideration a broadside discharge at an enemy located on either side, and ahead or astern at an angle greater than 45°. At any point in an arc of 90° 6600 pounds of shot can be hurled from four 13-inch, four 8-inch and two 6-inch guns.

In the foregoing we have mentioned only the main battery. The ship also carries twenty 6-pounder rapid-fire guns, six 1-pounder rapid-fire guns, two Gatlings and six torpedo tubes. Thinking of the offensive and defensive power of these vessels, we can understand the declaration made by ex-Secretary Tracy that "their equal as fighting ships does not exist at the present day. They will never have occasion to run from a hostile fleet of equal or even slightly superior numbers, whatever the vessels of which that fleet is composed."

The great Anti-Trust Convention, which met in Chicago last week, with representatives from nearly all the States in attendance, was a failure. There was considerable discussion and sundry resolutions were passed, but they will not hurt anybody. The action taken by the regular convention presided over by Governor Nelson of Minnesota was too tame for some of the radical reformers, so they bolted and held a convention of their own. The familiar name of Gen. J. B. Weaver of Iowa appears as president of this convention. Both bodies made provision for continuous work against trusts hereafter. At one time the prospects were very favorable for effective work in arousing public sentiment in this way against combinations, but somehow the movement has fallen flat, and it will be singular, indeed, if the June Anti-Trust Conventions are remembered with more than languid interest when Congress assembles.

The Duplex Process.

To Americans the most interesting paper contributed to the recent meeting of the Iron and Steel Institute, which was not read, owing to the absence of the author, was that of Paul Kupelwieser of Witkowitz, Austria, on the manufacture of basic steel at those works. Witkowitz is, we believe, the only plant running on the duplex process, as it has been called, so that data relating to the results there obtained may prove very valuable to those who have pleaded for the combined acid Bessemer and basic open hearth for our own South. The method at the Austrian works is as follows:

Pig iron carrying too much phosphorus for the acid Bessemer process and too little for the basic Bessemer is taken direct from the blast furnaces to a 4-ton Bessemer converter, acid lined. In it the metal is desiliconized, the operation of removing 0.8 to 1.2 per cent. silicon taking five to six minutes. The paper does not state what the manganese contents of the pig are, but the inference seems warranted that the manganese contents are quite considerable, since the Bessemer slag is used in the manufacture of ferromanganese.

The desiliconized metal is run into the open-hearth furnaces direct, but since the blast furnaces do not furnish iron enough, solid metal is added. For the year 1892 the three open-hearth furnaces melted 1649 charges, aggregating 30,297 tons, 56.16 per cent. thereof, or 17,016 tons, being desiliconized liquid metal, while 36.82 per cent., or 11,156 tons, was cold pig, and 7.02 per cent. was scrap. Sundays, holidays and stoppages for repairs kept the open-hearth furnaces idle for 22 per cent., or nearly one quarter, of the time. The product of ingots was 28,172 tons, or 93 per cent.

Concerning the life of the converters, Kupelwieser says that over 1000 charges are often made in the same vessel, and that more than 100 blows are made on the same bottom. No specific data are furnished on the life of the open-hearth furnaces.

The fuel consumption appears to be very low, 0.16 ton of coal being required for the producers, including the heating up of the furnaces and keeping them going during repairs. The consumption of coal for the blowing engines for heating converters and ladles figures up to 0.155 ton, making the total fuel account, 0.315 ton per ton of ingots. The quantity of lime addition used is 0.0795 ton per ton of ingots, while the amount of ore used is 0.063 ton.

Mr. Kupelwieser reports that the salaries and wages figure out 4 shillings 6 pence per ton, and that the cost of the duplex process is lower by 10 shillings per ton than the straight basic open hearth. He asserts that if it had been possible to use a larger percentage of desiliconized fluid metal the cost would not have exceeded that of making steel from a low-phosphorus iron by the acid Bessemer process.

It is, of course, impossible to judge to what extent local conditions favor the duplex process at Witkowitz and whether similar economical results are obtainable elsewhere, notably in the South. But it is certain that the duplex process is technically feasible.

CORRESPONDENCE.

Aluminum Horse Nails.

To the Editor: If aluminum horse shoes are a rare and uncommon article of foot gear for horses, how much more rare to find in use are aluminum horse shoe nails.

Over a year ago The New Process Nail Company of Torrington, Conn., made a few nails from this material. I believe their process of manufacturing is the only one that will make a nail from this metal, and that no other maker has attempted the task of making nails from it.

Should like to hear if any one else has tried to do it, and if successful in the attempt. W. W. M.

F. A. Houdlette.

To the Editor: I notice in your issue of June 8, page 1292, the bottom of the second column, a reference to Charles Carroll Loring & Co., 272 Franklin street, Boston, making me a partner in that firm. I wish simply to say that I am not a partner, and am in no way connected with the business financially. You will please make this correction, as I do not wish to be liable in any way, shape or manner.

Yours very truly,
F. A. HOUDLETTE.

BOSTON June 9, 1893.

The Grant Locomotive Works of Chicago made an assignment in the County Court on the 6th inst. in favor of A. K. Ackerman and J. H. Wilson. The concern was one of the largest manufacturing enterprises in the West. Among the creditors holding the largest claims are the French Spring Company of Pittsburgh and the Otis Steel Company of Cleveland.

The liabilities of the company in total are $410,950.36, $200,000 of which is a mortgage in favor of the trustees, and has precedence over the remainder of the claims. It was executed prior to the issuing of the notes constituting the remaining indebtedness. It having been satisfied, the other amounts will be settled in accordance with the company's resources. The aggregate assets as conservatively presented are:

Plant	$857,513.84
Cash and materials on hand	293,950.16
Total	$1,151,464.00

This statement shows an excess of $740,513 64 over all liabilities, rendering the condition of the company safe.

The Water Committee of Allegheny Councils, at a meeting held in Allegheny, Pa., last week, adopted a resolution providing for water meters in all mills and factories in that city. The cost was fixed at 3½ cents per 1000 gallons.

Declining Pig Production.

The long-expected decline in the production of pig iron has come at last, and, if all reports prove true concerning the stoppage of other plants, there will be a further sharp restriction. The falling off is due apparently to all classes of producers, those connected with large steel works, those working for the open market on Bessemer, foundry and forge grades, and those making charcoal irons.

On June 1 the active furnace plant, grouped according to fuel used, possessed the following weekly capacity:

Fuel.		
Anthracite	70	33,916
Coke	140	132,079
Charcoal	34	8,034
Total	244	174,029
Total April 1	251	181,551
Changes	−7	−7,522

The weekly product of all the furnaces on May 1 compared as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
June 1, 1893	244	174,029
May 1	251	181,551
April 1	255	178,858
March 1	255	176,578
February 1	251	171,201
January 1	246	173,068
December 1, 1892	246	176,271
November 1	244	171,082
October 1	236	158,027
September 1	236	151,648
August 1	238	155,136
July 1	254	169,151
June 1	269	173,674
May 1	268	177,886
April 1	280	185,462
March 1	305	193,902
February 1	308	187,383
January 1	305	188,082
December 1, 1891	298	188,135

The following table shows the status of the anthracite furnaces:

Anthracite Furnaces, June 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	18	3	1,462	15	5,221
New Jersey	11	2	915	9	3,841
Spiegel	3	3	238	0	0
Pennsylvania:					
Lehigh Valley	44	23	9,151	21	7,424
Spiegel	1	1	56	0	0
Schuylkill Valley	27	15	8,369	12	4,005
U. Susquehanna Valley	14	7	3,294	7	1,699
L. Susquehanna Valley	17	8	5,135	9	2,215
Lebanon Valley	15	8	5,301	7	2,009
Totals	150	70	33,916	80	26,414

For a number of months past our records of active anthracite furnaces show the following:

	Furnaces in blast.	Capacity per week.
June 1, 1893	70	33,916
May 1	67	33,168
April 1	72	34,641
March 1	74	34,773
February 1	74	32,871
January 1	70	32,772
December 1, 1892	69	33,602
November 1	69	30,869
October 1	69	29,958
September 1	66	27,453
August 1	66	28,821
July 1	72	31,754
June 1	76	33,209
May 1	81	35,473
April 1	84	36,487
March 1	89	38,678
February 1	92	38,124
January 1	94	38,307
December 1, 1891	85	34,905

Among the furnaces which have blown out or are banked we may note Burden in New York, one Saucon of the Thomas Iron Company, Hokendauqua, and one Sheridan in the Lebanon Valley. There have been started during May one Crown Point in New York, one of the speigel furnaces of the New Jersey Zinc Company, Norristown, and one Swede in the Schuylkill Valley; one of the furnaces of the Allentown Rolling Mill Company, and one of the Lehigh Steel & Iron Company in the Lehigh Valley.

The following table represents the condition of the coke furnaces:

Coke Furnaces, June 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	7	4	4,873	3	1,400
Pennsylvania:					
Pittsburgh district	24	21	34,983	3	2,898
Spiegel	2	2	2,000	0	0
Shenango Val.	16	9	8,914	7	5,287
Juniata and Conemaugh Valley	16	7	6,485	9	3,751
Spiegel	1	1	863	0	0
Youghiogheny Valley	3	0	0	3	2,215
Miscellaneous	4	3	1,790	1	600
Maryland	5	3	4,670	2	1,850
West Virginia	1	0	0	1	250
Wheeling District	9	6	6,135	3	1,891
Ohio:					
Mahoning Val.	15	9	9,996	6	4,965
Central and Northern	11	8	6,570	3	2,284
Hocking Val.	14	3	1,047	11	2,633
Hanging Rock	14	8	1,719	6	1,419
Indiana	2	1	203	1	200
Illinois	19	7	11,200	12	15,975
Minnesota	1	0	0	1	629
Wisconsin	5	3	3,023	2	1,200
Missouri	6	1	617	5	2,850
Colorado	3	2	1,425	1	500
The South:					
Virginia	21	9	5,515	12	6,715
Kentucky	7	3	1,347	4	1,900
Alabama	38	21	13,640	17	8,798
Tennessee	14	7	4,263	7	3,405
Georgia	2	1	724	1	600
N. Carolina	1	1	97	0	0
Totals	261	140	132,079	121	73,455

As compared with previous months, the active coke furnaces make the following showing:

	Furnaces in blast.	Capacity per week.
June 1, 1893	140	132,079
May 1	146	139,788
April 1	145	135,488
March 1	145	133,579
February 1	140	129,396
January 1	138	131,731
December 1, 1892	136	133,160
November 1	133	130,673
October 1	128	118,895
September 1	128	114,538
August 1	131	117,984
July 1	140	127,453
June 1	145	128,852
May 1	147	132,313
April 1	152	138,116
March 1	163	143,490
February 1	167	138,268
January 1	163	138,611
December 1, 1891	162	142,747

The principal falling off in current production is due to the decline in the number of furnaces in blast in Illinois. The Illinois Steel Company have blown out one in Joliet, one of the new South Chicago furnaces and one Union, but have started one of the older stacks at South Chicago. Since the opening of the month the company have also blown out one of the Milwaukee furnaces. Pittsburgh is running with the same plants, while in the Shenango Valley Douglas is now out and others are to follow. In the Juniata Valley Rockhill has banked No. 2 on account of labor troubles. Cambria is running one of its furnaces on spiegeleisen and ferromanganese. Belmont, in the Wheeling district, is idle. The Ohio furnaces recorded no changes, although Thomas, at Niles, has stopped since the opening of the month. Duluth, in Minnesota, has blown out.

In the South, Hattie Ensley and Lady Ensley are not producing, and output is to be still further reduced by the reported stoppage of Anniston and Philadelphia. Tennessee has Citico again at work, while in Georgia Rising Fawn is running with full product. It is expected that in Virginia Big Stone Gap will be idle. On the other hand, Pulaski is probably at work at this writing, June 12 having been fixed as the date for blowing in.

The position of the charcoal furnaces was as follows:

Charcoal Furnaces, June 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New England	13	4	310	9	650
New York	5	1	89	4	485
Pennsylvania	13	1	45	12	870
Maryland	7	1	82	6	504
Virginia	13	0	0	13	827
Ohio	9	2	165	7	840
Kentucky	3	0	0	3	360
Tennessee	8	5	1,050	3	350
Georgia	3	1	275	2	320
Alabama	13	6	1,709	7	1,510
Michigan	20	7	2,358	13	3,525
Missouri	2	1	351	1	293
Wisconsin	4	3	1,200	1	200
Texas	4	2	310	2	410
Washington	1	0	0	1	100
Oregon	1	0	0	1	225
Totals	119	34	8,034	85	11,547

As compared with previous months, the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
June 1, 1893	34	8,034
May 1	38	8,595
April 1	38	8,729
March 1	36	8,693
February 1	37	8,934
January 1	38	8,865
December 1, 1892	41	9,509
November 1	42	9,540
October 1	39	9,174
September 1	42	9,657
August 1	41	8,331
July 1	42	9,364
June 1	48	11,613
May 1	40	10,100
April 1	44	10,859
March 1	50	11,734
February 1	49	10,991
January 1	48	11,164
December 1, 1891	52	11,033

The principal decrease in production has taken place in Michigan, where Elk Rapids and Pioneer have gone out. Oswego in Oregon is also idle. Midland in Missouri started up.

Stocks.

The position of stocks, sold and unsold, as reported to us June 1, was as follows, the same furnaces being represented as in former months:

Stocks:	Mar. 1. Tons.	Ap'l 1. Tons.	May 1. Tons.	June 1. Tons.
Anthracite pig	141,070	138,328	133,209	117,595
Coke pig	392,071	337,080	324,864	321,987
Charcoal pig	202,283	195,866	202,272	202,608
Totals	735,424	671,274	660,345	642,190

The only change of consequence has taken place in anthracite pig stocks, where it will be noticed a reduction of 15,600 tons has occurred. The Alabama coke producers report a reduction in stocks during the month of about 10,000 tons. The changes in other coke-producing districts have been nominal.

The annual report of the Chamber of Commerce of New York shows that the total foreign merchandise trade of the port of New York during the last fiscal year reached $950,490,895—an increase of $66,176,041 over the preceding year.

The Foundrymen's Association.

The regular monthly meeting of the Foundrymen's Association was held at the Manufacturers' Club in Philadelphia, on Wednesday, May 7, with a large attendance of members. Francis Schumann was chairman. The minutes of the last meeting were read and adopted. The Executive Committee reported that at its last meeting the state of the foundry trade was fully discussed. It was found that collections were very difficult to make, owing probably to the fact that banks were refusing credit without gilt-edged securities, and were asking for additional collaterals for advances already made. It was noticeable that some of the large manufacturing concerns were the slowest pay, while the small operators found it necessary to make prompt settlements in order to establish a good name. Regarding the labor question it was mentioned that many negroes were employed in the trade, especially in the South. The negroes were also advancing North. They were now to be found in shops in Philadelphia, Baltimore, Cincinnati and elsewhere. They were finding employment as laborers and casting cleaners.

The circular inviting other foundrymen's associations to combine with their own organization had been directed to all interested parties at present known to the secretary and Special Committee. It seems that the Western Association of Foundrymen were under the impression that this was a local affair, and included only Philadelphia foundrymen, and it was necessary that the impression should be corrected. The Special Committee having the distribution of the circular in hand reported progress, and the intimation was made that the circular was favorably received by the recently formed Western Association. It was submitted that it would be in order for this association to send a communication to the new association at Chicago, congratulating its members on its formation and expressing the wish of this association to be in touch with them upon all matters, and offering them any information at present in its possession.

The treasurer reported the balance on hand June 1, $389.91, and all bills paid.

The McLaggan Foundry Company of New Haven, Conn., the F. M. Davis Iron Works Company of Denver, Col., the C. S. Swallow Company of Trenton, N. J., the Crown Smelting Company of Chester, Pa., and R. S. Newbold & Son of Norristown, Pa., were elected to membership in the association.

E. H Mumford of the Henry R. Worthington Foundry, Elizabethport, N. J., then made some remarks at length on the subject of

"Keep's Test for Cast Iron,"

pamphlets descriptive of the test having been distributed prior to the commencement of the meeting.

He said in introducing the subject of a new system of tests, he wished to state very plainly that neither he nor the company he represented had any interest in the system, other than the common interest he trusted they all felt in the bringing to the notice of their association anything novel that had been found to be of use to foundrymen. He might say, inasmuch as Mr. Keep had been kind enough to couple his name with his in the pamphlet then before the meeting, that in Detroit some years ago, Mr. Keep and himself were neighbors—that is, the foundry with which he was at that time connected and Mr. Keep's place of business were not far apart, and, having occasion to make a test for certain castings, he investigated Mr. Keep's method, and, becoming interested in it, had resolved that if ever he were so placed as to be dependent upon a system of tests he would know where to get a good one.

No longer ago than last July I experienced the need of some such guide in the management of our cupolas, and wrote to Mr. Keep, with the result that I secured from him the first set, I believed, of any apparatus sent out. The apparatus described in the pamphlet is more complete than the apparatus I am using, and, I believe, more complete than is recommended for foundry use. In fact, it is a question whether foundries are ready to adopt so elaborate a system as Mr. Keep proposes. While the pamphlet describes the test very completely, with the method of making it, it may be well for me to say a few words regarding it. 1, As to what the demand for any good foundry system of tests may be; 2, what the nature of such a test is; and 3, what results can be obtained from such a system. As to the demand for some kind of foundry tests, however crude, I think there is plenty of evidence that methods, ofttimes crude, for testing the strength of cast iron, are used. A bar clamped in a vise, and having a weight hung on the end, is considered good enough by many people, and there are many methods for making tests of shrinkage. I doubt whether the use Mr. Keep puts the chill test to has ever been followed for ascertaining the degree of hardness in castings.

The other day I had a call from a leading chemist who wished to give me an idea how useful chemistry was to the foundry, and, incidentally, how useful he, as a chemist, could make himself to our foundry. The chemist assured me of his belief that the system of tests I am using (Keep's) was very good, but too complicated for everyday use, and that it began at the wrong end. As a chemist, he said, he thought he could regulate the product of a foundry absolutely, and mentioned that, after the product of the cupola had been cast it would be too late to apply a remedy. This statement I was bold enough to deny, as I do not believe I can always predict an absolute result from the analysis. I am using chemistry as a sort of hygiene, and am supplementing it with Keep's test as a means of obtaining a diagnosis of symptoms with good results. The chemist may prescribe a diet, so to speak, but without a method for obtaining physical tests to indicate the results forthcoming castings may turn out hard and crack, and the trouble not be discovered until the castings had reached the machine shops some weeks after, and too late for remedy. The chemist in this case may be able to suggest a remedy, or, at any rate, explain the trouble. But unless the chemist has some means of making a physical test he has to work entirely in the dark.

For nearly a year it has been my practice to make tests almost daily by the Keep process, and to carefully record such tests in order to keep mixtures uniform, and at the same time keeping constant watch of the daily changes in the results. The time consumed in this way does not exceed three hours a week. If the iron appears to be going wrong, or getting hard, or shrinking too much, I know immediately what remedy to apply, thanks to the chemist; at this point chemistry counts. The main guide in the mixture for the cupola, as all know, seems to be the silicon, and if too much shrinkage is apparent it is evident that more silicon is required.

On the occasion of a visit to a roundhouse in England I found a practice in vogue of placing a sign on the boiler head denoting that the boiler was empty. I asked the foreman whether he found it a good plan, and it was admitted there was just a chance of a hostler at some time finding no sign there and putting in a rousing fire without any water, with disastrous results. The safest is always to try the gauge cocks. So it is with Keep's test. If there is implicit faith in the competency of the chemist to control the foundry output, men will place iron in the cupola, neglecting even rough inspection, and will eventually—it may be weeks later—find everything wrong. But if there are systematic physical tests made it will be found within a day that something is wrong, and there will be time to correct it. I cannot say much as to the nature of Mr. Keep's test that is not explained in the admirable little pamphlet before the meeting, but I, and doubtless all present, find it absolutely necessary to use some system of tests, and I feel that Keep's is superior to any that I know.

I consider it necessary that a man molding test bars should be kept at the work constantly, that the same kind of sand may be used, that the man may "keep his hand in," and that the ladle may be always in the same condition. Keep's test is unusually delicate in its indications, on account of the small size of the bars used.

This fact is illustrated in a letter I have just received from Mr. Keep regarding the effect of the condition of the ladle from which he pours his test bars. Chemistry will avail very little to show what effect a green ladle has on a casting, and I doubt whether a large test bar would show the same differences in iron poured from different ladles. Mr. Keep says that the results are startling. His bars were cast in three sets. One set from a green ladle, newly lined and baked over night; another from a ladle used the day before and cold; a third from a ladle in use for an hour, and therefore both dry and hot. From the green ladle his shrinkage on the ½ inch square bar 12 inches long was 0.155 inch, and the strength 369; from the ladle used the day before, and cold, the shrinkage was 0.151 inch, and the strength 386; while from the ladle that was hot, the shrinkage was 0.143 inch, and the strength 335. From my own experience I can quote a case of a casting which, although shown by Keep's test to be not up to the usual standard, yet passed satisfactorily. It was a cylinder casting. Keep's test, which ordinarily gives me from 0.155 to 0.159 inch in the square bars, jumped to 0.185 inch, and the chill obtained by splitting the end of the square bar, as noticed in the bar before the meeting, the chill occurring from the contact of the hot iron with the polished face of the chill, which ordinarily runs about 0.05 inch, jumped to 0.29 inch, or ¼ inch, and the strength, which is generally over 400, dropped down to 352. The results were so startling to me that I did not believe the casting to be good for its purpose. Yet, although it was found hard to bore out, it finally passed inspection.

Here is seen the usefulness of the test. Had there been anything in our regular mixture wrong, as appeared in this singular instance, it could have been at once corrected. The difficulty in this instance lay in the introduction of brass scrap by accident, the analysis of the iron showing copper 0.02 per cent., and there must have been also a good deal of spelter and tin.

The results to be obtained from this method of test, or any other careful method, are more to be looked for in making it possible to keep iron uniform and make a certainty of its being kept so than to bring about startling developments. While the strength of the test bar which is included in Keep's system is interesting, it is not as important as the shrinkage and chill tests. I believe that most designers make strength a very secondary question. At the same time the investigation of shrinkage leading to cracks in castings is very important.

I believe that it is the absolute routine and accuracy of the Keep test that make it of service and that the shrinkage and chill tests are far more valuable than the tests of strength. I have here a diagram of one of Keep's tests. A bar $\frac{1}{2}$ inch square not only stood a test of 500 pounds, but held it while I stepped to head of machine, and afterward endured a second application. The diagram shows very nicely what the characteristics of the bar are. It is a photograph of the iron itself.

Referring again to Mr. Keep's letter and the tests of the ladles, Mr. Mumford stated that the results as quoted by him should not be taken as final or correct, as they were were not yet fully verified. Mr. Keep had stated that the iron was caught from a cupola in one ladle and divided among the smaller ladles in 15 pound parts. He (the speaker) once made a mistake, or rather his molder did, by dipping his ladle for the test bars from the top of a large ladle, which made a great difference in the iron. As far as chemistry was concerned, the question was, whether it would overcome any variation in shrinkage made on the same day from the same cupola. Asked which test, chemistry or Keep's, he would use, supposing one test only could be made or adopted, he said he would use Keep's. Having Keep's test and knowing no chemistry, it would be quite possible to return to "No. 1 Scotch" and correct any bad results from the use of higher numbered brands, and this is what the practical founders would do at the sacrifice of cheaper iron, which it is the aim of men using Keep's test as well as men using chemistry in the foundry to render available. Keep's test was to point out the difficulty. Chemistry could only explain why the difficulty existed. Finding the difficulty, in his opinion chemistry should suggest the means of remedy.

The chairman remarked as to the question of the strength of cast iron, that it was a secondary question. The irons of to-day were so near to a standard, and the factor of safety used by engineers was so great, that the question the foundrymen had to consider was the procuring of an iron that would work easily, shrink uniformly, would not warp, would have no chilled surfaces, be homogeneous and free from flaws. This was the principal question nowadays. The question of strength was admitted to be there, of course, and in some cases a very high standard of iron was required. The main feature was to determine whether a brand of iron bought was of the necessary quality. Was it free from chill? In casting, would it crack before it was cold or after? In a simple way, at his company's works, they got at the quality by making a test piece 12 inches long, 3 inches wide, $\frac{1}{2}$ inch thick at one end, and feather edge at the other. In casting they could see marked differences. The feather edge showed the chill, and the foundryman drilled holes until he could not penetrate the iron. In the next heat he would find the chill deeper, or shallower, and the length of bar would give the amount of shrinkage. It was a very simple method. Some test pieces showed the chill from feather edge running up 4 to 5 inches where the iron was $\frac{3}{16}$ to $\frac{1}{4}$ inch, while in other pieces the chill would run only a short way. The test piece also indicated the fluidity of the iron. Of course the question of strength in these tests was lost sight of. The chairman then, in behalf of the association, thanked Mr. Mumford for his address.

The secretary then introduced to the meeting H. S. Sparr of Philadelphia, the general agent of the Greiner Economical Cupola Company, who read an interesting description of the Greiner process, as found in the pamphlet of the company, also extracts from an article which had appeared in the Franklin Institute *Journal*, entitled: "An Investigation of the Construction of Various Kinds of Cupolas for Melting Pig Iron." Supplementing his reading with remarks of his own, Mr. Sparr aroused considerable interest. Some discussion took place upon the subject, during which Mr. Rankin of the Abram Cox Stove Company of Philadelphia stated that the Greiner process was in use at his company's foundry, and that so far as they were concerned, it was no doubt worth all that it cost them. It had proved a saving to them, but not so much as had been represented to them that evening, by a good deal. They could melt more rapidly than before, and saved some fuel. He believed, however, that the process would be applied in a more efficient manner than adopted in their cupola. There was some fault in its application which would be remedied the next time the cupola was lined. He could recommend the cupola to any one melting from 15 tons upward, and believed it would prove a saving to them of from 8 to 12 per cent.

The secretary called attention to the fact that about last September he wrote a letter to the Assistant Secretary of State at Washington, asking a number of questions. He wished, for purposes of the association, to get information as to cupola practice in England, France and Germany, and requested the Secretary of State to get the information through his consuls. The Secretary of State accordingly sent out printed letters to each of the consuls of those countries, asking the questions contained in the letter, but up to the present time the association had received no definite answers to the questions. He again wrote quite recently, and received a reply to the effect that about 25 communications had been received, but publication of same could not be made until after July 1. He intimated that if all the questions were answered, the association would certainly get some valuable information which would enable them to draw comparisons regarding cupola and foundry practices in Europe and America.

The expediency of arranging a union or centralization of the associations of foundrymen at present existing or under formation was then discussed by the meeting, the prevailing opinion being that it would be better for the Foundymen's Association to continue on its own lines for the present. The chairman was of the opinion that as the different organizations became more complete a convention would probably result; and therefore it would be well to let things rest and watch the development of the associations throughout the country. The meeting then adjourned to the roof garden of the club, where the usual quarterly lunch was served.

After the lunch, P. D. Wanner of the Mellert Foundry & Machine Company, Reading, Pa., was asked to make a few remarks upon trade at the present time, and, although the hour was late, Mr. Wanner delivered an address which was listened to with marked interest. In the course of his address, speaking of the cast-iron pipe trade, which he more particularly represented, he said that all the foundries, as far as he could learn, were very busy. The demand for cast-iron pipe for this season, and for the year prospectively, would go away beyond any demand that the country had ever seen heretofore. The demand for cast-iron pipe at the present time was, in his opinion, very great, and for the year it would be simply enormous. He believed he made the statement at a previous meeting that the pipe trade was dependent to a great extent upon the weather, and that the droughts experienced during last year were likely to stimulate the pipe trade. The country had had freshets off and on since 1886, and the freshets this year were very bad. The trouble in many sections was not in the getting of water, but in the getting away from it. This, of course, kept the pipe business back. But the droughts of last year all through the country stimulated the trade to a wonderful degree. Almost every town and available village was at this time being piped and yet in the face of all this, in spite of this enormous demand, the pipe was being supplied at very low prices, unprofitably low, in view of the fact, too, that during the depression of the last four or five years the pipe foundries had run down to a great extent. Repairs were in order and necessary, so that even if a gain was made on the poor pig-iron men, that was all that was made, as far as the cast-iron pipe trade was concerned. Whatever profit there was in the business at this time was simply taken from the pig-iron men. When foundrymen came to make repairs during the year, which they had to do at its close, they would probably be just as poor as in the beginning. Under the existing condition of things he had not much hope for the pig iron trade. They would remember that he made some predictions during the early part of the year, and some then present probably thought he was wild when he made them, but in his opinion the predictions had been more than verified, and many around him who had heard him make them could now substantiate them. They could only hope that there would be a change and the change could not come any too soon for all. There might be other causes, but in his opinion the present state of things was brought about by overproduction. In the pipe trade, the pig iron trade, the steel-rail trade and a great many other lines the same cause of depression was apparent. Mr. Wanner closed his address with some forcible remarks on protection and the silver question.

The next meeting of the association will be held July 5.

The Western Wages Question.

The eighteenth annual session of the Amalgamated Association of Iron & Steel Workers convened at Pittsburgh on Tuesday, the 6th inst., with M. M. Garland in the chair and J. C. Kilgallon secretary. About 190 delegates were in attendance, which is a smaller number than has been present at previous conventions for a number of years. The reason advanced for the falling off in attendance of delegates is said to be due to the desire of the association to keep down the expenses of the present convention as much as possible, and also to the fact that where a lodge was entitled to two or three delegates only one was sent. The first business of the convention was calling the roll, and then followed the annual reports of the president and secretary. The report of the Wage Committee appointed by President Garland to go over the recommendations of the various lodges concerning a scale governing wages in rolling mills for the year 1893–94 was then taken up, and the scale was under consideration by the association until Saturday morning, the 10th inst., when it was completed. The scale as adopted, and which will be presented to the manufacturers in a few days for their signature, is precisely the same as the one now in force, with the following exceptions: In the fifth clause of the memorandum of agreement, which now reads as follows, "that mills may work three turns in 24 hours when practicable," has been changed by the addition of the words "except boiling department." No further changes occur in any of the departments of the scale, except in the "addenda," and in this clauses 2 and 3 have been changed by the addition of the words "and paid by the company." While it was the impression in some quarters that the association would formulate a scale based on $5 per ton for boiling, this has not been done. It can be stated, however, that in preference to going into a fight the Wage Committee of the Amalgamated Association will probably recommend to the General Conference Committee that a reduction from $5.50 to $5 per ton be made. That this will be the case has been denied by certain officials of the Amalgamated Association, but the information on which this statement is based was obtained from excellent authority.

Now that the scale has been formulated, the next step taken will be to meet the Conference Committee of the manufacturers. As already noted a General Conference Committee has been appointed by President Garland, consisting of 31 persons, and this number can be added to at any time, if desirable. This General Committee is divided into three sub-committees. The first of these consists of nine members and will consider the boiling scale, muck and puddle mill scales, scrapping, busheling and knobbling. The second consists of 11 members, and will confer with the manufacturers on the guide, 10-inch, hoop and cotton tie mills, plate and tank mills, rolling pipe iron, on sheet and jobbing mills. The third committee consists of nine members and will consider the tin and black plate mill scales. It is the expectation that the Amalgamated Association will have concluded its session on Saturday, the 17th inst., and it is expected that these three committees will meet the manufacturers early next week. It was the original intention to confer with the manufacturers while the Amalgamated Association was still in convention, but owing to the fact that it is desired to have as short a session as possible, it has been deemed advisable to postpone conferences until after adjournment. The first of these conferences will likely be held on Monday or Tuesday of next week, and it is probable that the Conference Committee representing the Amalgamated Association will be vested with more power than was the case last year. If, in their opinion, it is desirable to make any changes in the scale as formulated, the committee will likely have power to do so instead of submitting the question to the various lodges of the Amalgamated Association and voting on it, as was done last year.

As announced in our issue of last week, the regular monthly meeting of the Iron & Steel Sheet Manufacturers' Association was held in its headquarters in the *Times* Building on Tuesday the 6th inst. J. G. Battelle of the Piqua Rolling Mill Company, Piqua, Ohio, was chairman, and John Jarrett secretary. After considerable routine business had been disposed of the wage scale question came up for discussion, and occupied the attention of the members during the balance of the meeting. A conference committee of seven sheet manufacturers, with J. G. Battelle as chairman and John Jarrett secretary, was appointed to meet a similar committee from the Amalgamated Association. We are advised that the manufacturers will ask that some of the extras in the scale now in force be eliminated, and also that clause 2 in the sheet-mill scale, reading as follows, be stricken out: "Ten (10) per cent. added on all steel by whatever name called, No. 22 and lighter." A meeting of these two conference committees will be held at an early date.

On the next day, Wednesday the 7th, the semi-annual meeting of the Tinned Plate Manufacturers' Association of the United States was held at the same place. Routine business covering operations of the association for the past six months was disposed of and the wage scale governing tin-house labor was then taken up. The manufacturers had previously been informed that the washmen would ask an advance of 25 per cent. over present rates, equivalent to 15 cents per box, instead of 12 cents, the present rate. It was the sense of the meeting that the scale of wages now in force was satisfactory to the manufacturers and would be signed by them for another year, but any advances asked over present rates by the workmen would be vigorously opposed. A Conference Committee of three, consisting of Wm. Banfield of Wallace, Banfield & Co., Limited, Irondale, Ohio; W. C. Cronemeyer of United States Iron & Tin Plate Mfg. Company of Demmler, Pa., and W. B. Leeds of the American Tin Plate Company, Ellwood, Ind., was appointed to confer with a similar committee from the Amalgamated Association. No time has been arranged for a meeting of these two committees, but they will come together at an early date. An election of officers of the Tinned Plate Manufacturers' Association to serve for the ensuing year was also held, and resulted as follows: W. C. Cronemeyer, president; Clarence Britton, vice-president, and John Jarrett, secretary.

The National Association of Boiler Manufacturers are holding their annual convention in Chicago this week. They began their session on Tuesday morning in Corinthian Hall, Masonic Temple Building, and the probability is that the proceedings will extend over three days. The local boiler manufacturers and supply houses have raised a considerable amount of money for the purpose of entertaining the members of the association. Among other interesting features of this part of the proceedings was a banquet on Wednesday evening. As the convention was held at about the time we are going to press, a report of the proceedings will be deferred until our next issue.

OBITUARY.

JOSEPH BEE.

Joseph Bee, proprietor of the National Boiler Works, 60 Fulton street, Chicago, was killed on the 8th inst, while driving along Michigan avenue with his son Addison. Their carriage was overturned by a runaway horse. Both were thrown out. Mr. Bee was picked up unconscious and died shortly afterward, but his son will recover. Mr. Bee was 57 years of age, and had been prominent in the Chicago boiler trade for many years.

JAMES MORRISON.

James Morrison of Troy died on June 11, after having been an invalid for about seven years. He was born in 1812 in the north of Ireland, of Scotch Presbyterian parentage, and came to Troy with his parents in 1819. In 1835 he entered the grocery and lumber business as a member of the firm of Anthony, Morrison & Landon. In 1847 the firm was dissolved, and he engaged in the manufacture of stoves on Green Island. He continued alone for a number of years, and in 1854 the firm of Fuller, Warren & Morrison, now the Fuller & Warren Company, was formed. In 1860 Mr. Morrison resumed the manufacture of stoves on his own account, and in the following year the firm of Morrison & Colwell was formed, the business being carried on at Green Island. In 1865 the firm of Morrison, Colwell & Page was formed and a rolling mill was established in Cohoes. The firm has been continued ever since, Mr. Morrison's associates being Thomas Colwell and E. N. Page. A few years later the firm abandoned the manufacture of stoves, the members devoting their entire attention to the rolling-mill industry. In 1876 Mr. Morrison became a member of the firm of Curtis & Co. of Cohoes, iron-pipe manufacturers. He severed his relations with this firm last January. In 1885 the Syracuse Tube Company was organized, to manufacture boiler tubes, Mr. Morrison becoming the president and one of the principal stockholders. He continued his connection with this company to the time of his death.

HENRY H. LAIRD.

English papers announce the death, at Birkenhead, England, of Henry H. Laird, one of the partners in the famous shipbuilding firm of Laird Brothers of Birkenhead. The Lairds have been closely identified with the development of shipbuilding and engineering for more than half a century. The present heads of the firm, John and William Laird, with their recently deceased brother, were the third generation carrying on the shipbuilding business. Mr. Henry Laird was born in 1838, and gained his first insight into iron shipbuilding at the works of the Messageries Maritimes, La Ciotat, France. The

knowledge thus gained he applied to the development of his family business, and, joining his brother as partner in 1862, he embarked on a career of prosperity as a builder of war vessels, in which he was singularly successful. Many vessels of his designing are now included in the British and other navies. Indeed, nearly every naval power to day possesses one or more specimens of his work. Among other noted ships designed by Henry Laird and built at the Birkenhead yard, were the notorious "Alabama," the Chilian "Huascar," the Argentine armored battleships "Libertad" and "Independencia," and the British sea-going torpedo vessel "Rattlesnake." Mr. Henry Laird was universally respected and beloved by those with whom he came into contact, and especially among his workmen. He was a member of the council of the British Institution of Naval Architects, and a member of the Institute of Mechanical Engineers of Great Britian. In speaking of his death the London *Engineer* says: "It is a remarkable fact that nearly all our knowledge of the modern conditions of naval warfare have been derived from vessels designed and built by Laird Brothers of Birkenhead."

W. BURR.

Wm. Burr, president of the Burr & Houston Company, owners of the Franklin Iron Foundry, at Greenpoint, N. Y., died at his home on Rodney street, Brooklyn, March 22, from a brief but severe attack of pneumonia. Mr. Burr, who was in his seventy-fourth year, was born at Fairfield, Conn., and was for years well known to the hardware trade as the manufacturer of Waterman's patent strap blocks. His last place of business in this city was in Peck Slip. He took charge of the Franklin Iron Foundry about 11 years ago, and when the present company were incorporated four years ago, became their first president.

PERSONAL.

W. C. Cronemeyer, the well-known tin plate manufacturer and chairman of the United States Iron & Tin Plate Mfg. Company, at Demmler, Pa., has been elected chairman of the Tinned Plate Manufacturers' Association of the United States. The election of Mr. Cronemeyer to this office was made in recognition of valuable services rendered to the association, and also from the fact that his firm can justly be considered as the pioneer tin-plate manufacturing concern of the United States, having engaged in the manufacture of tin and terne plates more than 20 years ago.

C. Snelling Robinson, formerly with the Dunbar Furnace Company of Dunbar, Pa., is now superintendent of blast furnaces for the Colorado Fuel and Iron Company at Pueblo, Col.

A. Bonzano, vice-president and chief engineer of the Phœnix Bridge Company, has resigned, to take effect at once. He has been in the service of the company 25 years.

John Starling Deans has been appointed chief engineer of the Phœnix Bridge Company, Phœnixville, Pa.

Prof. John C. Wait of the engineering department of Harvard University, has joined the editorial staff of the *Railroad Gazette*, New York.

George Cawley has resigned his post as editor-in-chief of London *Industries*, which he brought to its present high position. He has established himself as consulting engineer at 29 Great George street, Westminster, S. W.

MANUFACTURING.

Iron and Steel.

As announced last week, the blast furnace of the Thomas Furnace Company at Niles, Ohio, manufacturers of foundry and Bessemer pig iron, has been blown out for repairs.

The Mahoning Valley Iron Company, Youngstown, Ohio, have under consideration the erection of a new building to contain a 12-inch and 9-inch mill. The plans have not been fully decided upon, but in all probability an addition to correspond with the above will be made to the present plant.

The Liggett Spring & Axle Company of Allegheny, Pa., are receiving proposals for the erection and equipment of a large addition to their plant.

A charter of incorporation has been granted to the Guernsey Rolling Mill Company, at Cambridge, Ohio, with officials as follows: J. D. Taylor, president and general manager; S. W. Nicholson, secretary; W. A. Taylor, treasurer, and Ambrose Beard, superintendent. The plans have been prepared for the erection of a mill with a capacity of 24 tons per day. Negotiations with the railroads are now in progress regarding switches to be laid to the new plant, and as soon as these negotiations have been concluded work on the plant will be commenced at once.

The works of the United States Iron & Tin Plate Mfg. Company, at Demmler, Pa., will be closed down on July 3 and remain closed for three or four weeks. Some extensions and improvements will be made during the shut-down. As announced before, this firm are renewing their boiler equipment and have adopted the plan of placing the boilers over the furnaces, utilizing the waste heat from the furnaces for making steam.

The Cleveland Steel Casting Company of Cleveland, Ohio, will shortly commence the erection of a foundry to cost about $9,000.

The property of the J. & J. Rogers Iron Company at Ausable Forks, Essex County, N. Y., has been sold by M. C. Perry, referee in mortgage foreclosure, and was bid in by the former president of the company, H. W. Stetson, for $300,000. The old corporation was to have run 99 years, but since the iron business declined in that section some means had to be devised to close up the business of the concern; hence the foreclosure action. A new company will at once build a pulp mill at Rome, about 1 mile from Ausable Forks.

The 14 and 18 inch trains are in operation at the Albany Iron Works, Troy, N. Y., as well as the axle-hammer furnace. The steel works are also running full.

The last week in this month the Burden Mills, Troy, N. Y., will shut down.

The firm of Bellah & Co., iron and steel merchants, at Wilmington, Del., has failed. Executions have been entered against the firm aggregating $32,500.

The Illinois Steel Company have blown out one of their Bay View, Wis., furnaces.

The open hearth department of the Wellman Iron & Steel Company of Thurlow, Pa., has started up and every department of the plant is now in full operation.

Machinery.

The new plant of the Fuel Gas & Mfg. Company now being erected at Brinton, Pa., on the line of the Pennsylvania Railroad about ten miles east of Pittsburgh, is expected to be ready for operations about August 1 next. This concern are a Westinghouse interest and manufacturers of natural gas meters and other gas appliances. It is expected about 200 men will be given employment when the new works have been put in operation.

The Dorner & Dutton Mfg. Company of Cleveland, Ohio, with a capital stock of $100,000, have been granted a charter for the purpose of manufacturing and dealing in street railway supplies and general foundry and machine business. Henry A. Dorner and others are the incorporators.

John D. McKennan, receiver of Rees, Shook & Co., founders and machinists, at Pittsburgh, made his report to the court in that city last week. The total debt is $38,038.05; the credits, $22,052.39; fee for receiver, $1000, leaving a balance for distribution of $14,985.66. An order of court was made confirming the report, unless exceptions are filed before June 15.

The Mills Hop-Picking Machine Company of Syracuse, N. Y., have been organized at Syracuse, N. Y., and have filed their articles of incorporation at Albany. They propose to manufacture and sell hop-picking machinery. The capital stock is $150,000, and the directors for the first year are: Lionel Emden, Gideon N. Caleb, Vincent S. Caleb, Carey L. Brown, of Syracuse, and E. D. Mills of Clinton.

The putting up of the lathes in the gun shop at the Watervliet, N. Y., arsenal has been finished. G. A. Lambert, who has been in charge of the construction of the Niles Tool Company's lathes, but has been at the works in Hamilton, Ohio, has returned and is superintending the erection of a mammoth new machine.

The Rome (N. Y.) Locomotive & Machine Works have elected the following officers for the ensuing year: President, Thomas H. Stryker, Rome; vice-president, William B. Isham, New York; secretary and treasurer, Edward Comstock, Rome. The company are engaged in repairing locomotives and in doing such other machine work as can be secured. Contract work for the Pintsch Gas Light Company is also in progress.

The Holly Mfg. Company of Lockport, N. Y., are furnishing quantities of material for the water works machinery at Wheeling, W. Va.

Last month was the most successful month so far in the history of the Ball & Wood Engine Company of Elizabethport, N. J., although it is more than possible, judging by the orders already received, that the present month will exceed all former like periods in the number of horsepower sold. The new shops are now crowded to an inconvenient extent, and if the present demand keeps up it is only a question of a short time when a considerable extension will be needed.

The Berlin Iron Bridge Company of East Berlin, Conn., will build a new machine shop for the Fuller Iron Works at Providence, R. I. The peculiarity of this shop will be that the sides are entirely of glass, under the patents lately granted the Berlin Company for this construction. The building will be 90 feet in width and 210 feet in length.

Bogart Engine Company, Covington, Ky., owing to the rapid increase in the demand for their gas and gasoline engines, have been compelled to double their present productive capacity by the addition of new buildings and machinery.

Green & Linehan, iron founders, of Frankford, Philadelphia, have cast a planer bed for Detrick & Harvey of Baltimore, weighing 40,000 pounds. It was cast in two sections of about even weight. They have also cast for the same concern a planer table weighing about 28,000 pounds, and an upright lathe post weighing about 23,000 pounds.

Wm. Adams & Co. of the Hope Iron Foundry, Philadelphia, have purchased a building site 62 x 100 feet, immediately opposite their foundry, on which they will erect a two-story brick building to be used as a warehouse and showroom and for other purposes in connection with their business.

The machine shop and foundry of Daniel Dow, at Grand Forks, N. D., have been burned. The loss is $10,000.

The Allingham Boiler Company of Minneapolis, Minn., capital stock $100,000, have been organized for the manufacture of boilers and heating devices, cast, wrought and sheet iron work.

The Pratt & Whitney Company of Hartford, Conn., are about to add another factory to their works. The new building will be 140 x 40 feet in size and five stories high.

The Geo. V. Cresson Company have just completed the erection of an addition to their shafting works at Germantown Junction, Philadelphia. The new structure is 244 x 108 feet in size, constructed of brick and iron.

Miscellaneous.

The D. Frisbie Company of New Haven, Conn., have been reorganized. The new concern will be known as the Frisbie Elevator & Mfg. Company.

The work of erecting the new copper plant at Salt Lake City, Utah, is progressing rapidly.

TRADE REPORT

The financial question still overshadows everything else in the Iron trade. The most conflicting accounts are given in reply to questions bearing on the problem of collections. In some sections of the country they are quite good. The Pittsburgh, Valley and Wheeling districts have done fairly well during the past year, considering the low prices of product and are in quite good shape. The lake Iron mines have been suffering. It is reported that a number of the smaller mines cannot ship ore simply because they cannot raise money enough to pay freights.

In raw materials there are no new developments. The export sales of Wheat should help freights on foreign Ore, but since there is no demand, importers cannot take advantage of the opportunities offered.

The first step in the wages negotiations has been a characteristic one. The Amalgamated Association demands practically a continuance of the present scale, a meaningless proceeding since the men themselves do not expect to secure it. A curious report comes from Pittsburgh. It is intimated that the Amalgamated Association will be willing to insert a clause calling for a readjustment of wages in the event of a change in the tariff. They are said to take the stand that they will be willing to do this if the whole of any duty is removed. If any part thereof is allowed to remain, the scale is to be intact. No pro rata lowering to correspond with a lowering of the duty is to take place.

Cumulative evidence points to the fact that low prices and money difficulties are telling on Pig-Iron manufacturers. Tempting bargains are held out to make sales which will put money into the hands of the furnace companies. For some of them the pace is altogether too hot, and they have either blown out or will stop at an early date. Production on June 1 was 7000 tons per week under that of May 1, and the restriction is still going on. The outlook for the immediate future is so discouraging, however, that even at the low prices prevailing, neither consumers nor speculators show the slightest disposition to take hold. Stocks which appear to have lessened in May are at a low figure, but even that is not likely to have much effect when the prevailing temper is one of uncertainty and doubting.

Soft Steel is exceedingly dull. As yet there are no clear indications whether production or consumption will predominate in July.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, June 14, 1893.

The financial flurry of last week passed over without any unpleasant consequences. The savings banks stood the strain easily, and the panic did not extend to other classes of depositors. Money is still tight, however, and failures are occurring among business houses of high standing, cramped for ready funds. Indications of an improvement are seen in better collections reported in various branches of trade.

Pig Iron.—Inquiry for Coke Iron is very light from consumers, who are also checking up their shipments on contracts. Occasionally a good sale is made, one being reported for 2500 tons for scattered delivery. Production is being curtailed on account of the accumulation of stock at the local furnaces. The large Southern companies are reported to be carrying very light stocks at present, but, nevertheless, competition from that section is vigorously pushed. Northern prices are unchanged, but large buyers of unquestioned credit could do somewhat better than the figures given. Southern prices are decidedly irregular, and very low rates are named on some brands. Cash would enable good bargains to be made if a buyer knew just where to go to place his money to advantage. Lake Superior Charcoal is quiet, as large buyers are not inclined to enter the market at present. It will, perhaps, be late this month or some time next month before any of them begin to make negotiations. Meanwhile, prices are fairly steady on such small lots as consumers are inclined to take. Southern Charcoal is selling at very low rates. Quotations are as follows, cash, f.o.b. Chicago:

Lake Superior Charcoal.....	$16.25	@	$16.50
Local Coke Foundry, No. 1...	13.75	@	14.25
Local Coke Foundry, No. 2...	13.00	@	13.25
Local Coke Foundry, No. 3...	12.75	@	13.00
Local Scotch.....	14.00	@	15.00
Ohio Strong Softeners.....	16.00	@	16.50
Southern Silvery, No. 1.		@	15.00
Southern Silvery, No. 2.....		@	14 50
Southern Coke, No. 2.....	12.75	@	13.00
Southern Coke, No. 3	12.25	@	12.50
Southern, No. 1, Soft.....	12.75	@	13.00
Southern, No. 2, Soft.....	12.25	@	12.50
Southern Gray Forge..... ...	11.75	@	12.00
Tennessee Charcoal, No. 1....	16.50	@	17.00
Alabama Car Wheel.....		@	18.85
Coke Bessemer	14.50	@	15.00
Hocking Valley, No. 1	16 75	@	17.00
Jackson County Silvery.....	16.75	@	17.00

Bars.—Small sales are reported, the demand being light from general consumers. Jobbers are inclined to lay in considerable stock, but the big rush of orders expected in anticipation of the stoppage of the mills July 1 has not materialized. Consumers seem willing to repeat their experience of last year in taking the chances of a short stoppage only. Season contracts have come up again, but makers are not in the humor to close under existing conditions. Prices are too low for them to care for such large contracts, and the result of the wages contest is too uncertain. Prices range from 1.45¢ to 1.50¢, half extras, but the valley mills are pretty generally out of the market now on account of the expected stoppage July 1. Soft Steel Bars are selling at 1.60¢ @ 1.65¢, Chicago, for mill shipment. Store prices on small lots are 1.65¢ @ 1.75¢ for Bar Iron, and 1.70¢ @ 1.80¢ for Soft Steel Bars.

Structural Material.—No large orders have been taken for Beams, but the retail business in this line has picked up considerably, a great deal of repair work now going on in the building trade. Bridge work is a little more active, and some fair orders have been taken for Angles and other material of this class. Prices here have not been reduced as much as in other sections in the absence of sizable transactions to test values. Mill shipments are ranging about as follows, Chicago delivery: Beams, 1.85¢ @ 1.95¢; Tees, 1.95¢ @ 2.05¢; Angles and Universal Plates, 1.85¢ @ 1.90¢. Small lots from stock command 15¢ to 20¢ per 100 advance.

Plates.—Another week of fairly good business can be reported. Orders have run up a much better tonnage than had been expected. The volume of business, however, is not as large as in good times at this season of the year. Buyers are now discriminating and it is no longer the cheapest seller who gets the contracts. Quotations on mill shipments, Chicago delivery, are as follows: Tank Steel, 1.75¢ @ 1.85¢; Shell Steel, 2.05¢ @ 2.15¢; Flange Steel, 2.20¢ @ 2.30¢; High Grade Fire Box, 2.75¢ @ 5¢. Store prices are as follows: Nos. 10 to 14 Iron or Steel Sheets, 2.35¢ @ 2.60¢; Tank Steel, 2.20¢ @ 2.40¢; Shell, 2 35¢ @ 2.50¢; Flange Steel, 2.60¢ @ 2.80¢; Boiler Tubes, 67½ % @ 70 %.

Sheets.—The Black Sheet trade shows some little improvement, as consumers are now apprehensive of the curtailment of the supply after July 1, and are laying in more stock. Mill shipments continue to be quoted at 2.85¢ @ 2.95¢, Chicago, for No. 27 Common, with 10¢ @ 15¢ ℔ 100 advance for Sheet Steel. Galvanized Iron is not so active as it has been, but quotations are unchanged at 70 and 10 % discount for Juniata. Sheet Copper is in moderate demand at 30 and 5 % off for small lots.

Merchant Steel.—Quite a number of season contracts have been placed recently, and more good specifications are in the market. The Implement business is coming up in good shape at last, and a better feeling seems to be displayed all along the line in consequence of the improved business. Prices are quite steady, with mill shipments quoted as follows, Chicago delivery: Smooth-Finished Machinery, 1.90¢ @ 2.15¢; Open Hearth Spring and Smooth-Finished Tire, 2¢ @ 2 15¢; Iron-Finished Tire, 1.70¢; Ordinary Tool, 6¢ @ 7¢, and 12¢ and upward for Specials

Rails and Track Supplies.—Nothing of any special character has transpired in the Rail trade. Orders are small and not numerous. Quotations are maintained at $30 @ $32, according to quantity. An excellent business has been done in Track Fastenings. Iron and Steel Splice Bars are maintained at 1 65¢ @ 1.70¢; Track Bolts, with Hexagon Nuts, 2.60¢ @ 2.65¢; Spikes, 1.90¢ @ 2¢.

Old Rails and Car Wheels.—A carload lot of Old Iron Rails was sold the past week at $15.50, which shows the possibilities of the market when a movement is forced in this class of material. Railroads still ask $18 on round lots, but consumers offer $17, or less. Old Steel Rails, long lengths, have been sold at $13.50 in the interior of the State, but are worth about $14 here. Short pieces are in some demand, and may be quoted at $10.75 @ $12, Chicago, according to the position of the buyer and the seller. Old Car Wheels are nominally quoted at $14.50 @ $15 in the absence of transactions.

Scrap.—The Scrap market is very quiet. Low as prices now are, they appear to be weak, and dealers look for a further decline. Selling prices are as

follows ℔ net ton: No. 1 Forge, $13; No. 1 Mill, $9; Sheet Iron, $5; Pipes and Flues, $8.50; Axles, $20; Horseshoes, $12; Fish Plates, $14.50; Spikes and Bolts, $12.50; Cast Borings, $5.25; Wrought Turnings, $7.25; Axle Turnings, $9.50; Heavy Cast, $10.50; Stove Plate, $8; Malleable Cast, $8; Mixed Steel, $9.50, gross ton; Leaf Steel, $16.

Copper.—The demand for casting Copper has decidedly improved and carload lots are firm at 10½¢. Lake Copper is still quoted at 11½¢. Spelter is quoted at 4.10¢ @ 4.15¢ here in carload lots. Producers are dwelling on the coal strike in Kansas and the scarcity of Ore as strengthening influences, which may be felt very much sooner than consumers anticipate. Pig Lead is weak at 3.70¢ for carloads.

Philadelphia.

Office of *The Iron Age*, 230 South Fourth St., PHILADELPHIA, Pa., June 13, 1893.

The condition of the market may be described as dull and apathetic. No interest appears to be manifested in either buying or selling anything on terms usually available. The buyer would place orders at concessions, the seller would sell freely at a slight advance, but as neither alternative is possible, it is just a stand-off to see which will come out ahead. It is difficult to say which way the turn will be, although temporarily further weakness is not improbable. The general situation appears to be improving, confidence is stronger, money is a little easier, and it is thought that the worst pinch has been felt, but the feeling of conservatism is strong, and heavy buying is not seriously considered unless to cover known requirements, which it is believed was pretty generally accomplished during last month. As already stated, there is nothing in sight to give any very decided ideas on the situation except that there will be very little change in prices either way; but if there is to be a change it will take time to develop, for which reason both buyers and sellers feel that they can afford to take things leisurely.

Pig Iron.—Extremely dull. The situation has been pretty well defined in the previous paragraph, and there is really very little more that can be said. Good Irons are not in large supply and while it is possible to get all the Iron required at quoted rates, it is not going begging. Southern Irons are not entirely out of the market, and while sellers quote from $12.75 for Gray Forge, to $14 50 for No. 1 Foundry, they are believed to be feeling around for bids, which, however, are not easily obtained, except at somewhere around the old figures. The fact of the matter is, that no one seems to know just exactly what the condition of the market is, and all are therefore afraid to make either bids or offers, unless at figures wider apart than usual. There is absolute strength in the prices of good Iron, however, the uncertainty being in regard to brands which nobody particularly cares to have. Southern furnaces are reaching Philadelphia by water, and large sales of No. 3 Foundry are reported as made within a day or two at as low figures as were made before the advance in rail freights. The general demand, however, is for small lots, and prices generally quoted about as follows for Philadelphia or equivalent points, and 20¢ @ 30¢ less on brands at Harrisburg, and intermediately to Baltimore:

American Scotch, No. 1X	$16.00	@	$16.50
American Scotch, No. 2X	15.00	@	15.50
Standard Penna. (Lake Ore), No. 1x	15.00	@	15.50
Standard Penna. (Lake Ore), No. 2x	14.50	@	14.75
Standard Virginia, No. 1x	14.75	@	15.00
Standard Virginia, No. 2x	13.75	@	14.25
Virginia and Southern, No. 1x, Soft	14.25	@	14.50
Virginia and Southern, No. 2x, Soft	13.50	@	13.75
Standard Penna. and Virginia Forge	13.00	@	13.25
Ordinary Forge	12.50	@	12.75

Steel Material.—There is so little stuff for sale and so little wanted that there is practically no business doing, and furnace owners say there is not likely to be, unless cost can be reduced or selling prices advanced. Nominal quotations are about $16 to $16.25, delivered, for Standard Bessemer, and $18 to $18.25 for Low Phosphorus, with sales of several hundred tons of the latter (misfit) at about $17.25. P.S.—The Norristown Furnace, represented by E. R. Mann & Co., was blown in a few days ago and is turning out a very superior grade of Low Phosphorus Iron. An analysis for three days' running showed an average of 0.025 Phosphorus and less than 0.018 Sulphur.

Steel Rails.—There is no change in the situation, mills doing fairly for the present, but with very little work on their books for late delivery. Prices unchanged at $29 for Standard Rails, and $34 to $36 for Girders, which are in good demand.

Steel Billets.—There is nothing of any importance to note in this department. There has been a demand for lots of a few hundred tons each for this month's delivery, for which consumers were willing to pay $24, but as makers have been somewhat crowded for quick deliveries, they have asked $24.25 @ $24.50. Some business has been done presumably at over $24, but the lots were not large, as there is an impression that low figures will rule after the midsummer holidays. For August and later months, orders could be placed at $23.50 @ $23.75, but there appears to be an understanding on both sides to wait developments, rather than force business, as the outlook is very uncertain; although $1 ℔ ton will probably cover the extreme movement, but whether it is to be in buyers' favor, or the reverse, time only can decide.

Muck Bars.—Market extremely quiet, although holders are expecting a better demand during the hot weather. A few sales have been made at $23.25 @ $23 50, delivered, although some sellers quote $23, f.o.b. cars at their mills.

Bars.—Market as dull and as weak as it is possible for it to be. Prices are supposed to be 1.60¢ @ 1.65¢ for best Iron, city delivery, and 1.50¢ @ 1.55¢ at interior points, but, low as these figures are, it is said that it only requires a nice assortment of sizes to secure lower rates than any of the above. There is not much chance of improvement until after midsummer, and nothing tangible to indicate better prices then, although manufacturers hope for improvement some time in the near future. Steel Bars, 1.60¢ @ 1.85¢, according to quality.

Plates.—There is a good demand for small lots, but large contracts appear to be in abeyance, owing to the uncertainty and difficulty in arranging finances. Some mills appear to be pretty well employed, but others find it almost impossible to do more than run single turn. The general situation is far from satisfactory, and, unfortunately, there is nothing in sight likely to lead to much improvement in the near future. Some of the leading mills have a great deal of work on their books, but it extends a long way ahead, and is therefore not to be relied upon for tiding over dull periods. Prices are weak, but general quotations are usually about as follows, delivered:

	Iron.		Steel.
Tank Plates	1.80 @ 1.85¢		1.75 @ 1.80¢
Shell			2.10 @ 2.20¢
Flange	2.70 @ 2.90¢		2.25 @ 2.40¢
Fire Box	3.00 @ 4.00¢		2.50 @ 2.70¢
Special qualities			3.25 @ 3.75¢

Structural Material.—Business in this department is very dull, although mills are still doing pretty well on old contracts. Some are in fact quite busy, but the difficulty in financing business properly leads to delays and postponements which are very discouraging. General quotations are about as follows, but on large orders special rates would be made: Beams, Channels, or Tees, 1.90¢ @ 2 10¢, according to size of order; Angles, 1.80¢ @ 1.85¢; Universal Plates, 1.75¢ @ 1.80¢.

Sheets.—There is no change to note in this branch of business. Prices are irregular and unsatisfactory, and lower than ever on inferior makes, but the best qualities are fairly steady at about the following quotations, with perhaps a little shading when the order is of a specially desirable character:

Best Refined, Nos. 14 to 20	2.75¢ @ 2.85¢
Best Refined, Nos. 21 to 24	2.90¢ @ 3.00¢
Best Refined, Nos. 25 to 26	3.15¢ @ 3.20¢
Best Refined, No. 27	3.30¢ @ 3.40¢
Best Refined, No. 28	3.40¢ @ 3.50¢

Common, ¼¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being about ½¢ lower than here named:

Best Soft Steel, Nos. 14 to 16	2½¢ @ 2⅝¢
Best Soft Steel, Nos. 18 to 20	2⅝¢ @ 3¢
Best Soft Steel, Nos. 21 to 24	3⅛¢ @ 3¼¢
Best Soft Steel, Nos. 25 to 26	3⅜¢ @ 3⅝¢
Best Soft Steel, Nos. 27 to 28	3⅝¢ @ 3¾¢

Best Bloom Sheets, ¼¢ extra over the above prices.

Best Bloom, Galvanized, dis	70 and 5% @ 70 and 10%

Skelp.—There is a fair demand, but prices remain at the very lowest, say 1.50¢ @ 1.52½¢, delivered, for Grooved. Some mills quite full of work, others doing very little.

Old Material.—There is no market in the ordinary sense of the word, so that prices are irregular and difficult to quote with any exactness, but ordinary asking prices are about as follows: Old Iron Rails, $16.50 @ $17, delivered; Old Street Rails, $18 @ $19; Old Steel Rails, $15 @ $15.50; No. 1 Railroad Scrap, $14.50 @ $15, Philadelphia, or for deliveries at mills in the interior, $15 @ $15.50, according to distance and quality; $8 @ $9 for clean new No. 2 Light Scrap; $7 @ $7.50 for old No. 2 Light Scrap; $11 @ $12 for Machinery Scrap; $11 @ $11.50 for Wrought Turnings; $7 for Cast Borings, and nominally $20 for Old Fish Plates, and $13 for Old Car Wheels.

Wrought-Iron Pipe.—The demand is very slow and prices weak and drooping. Discounts nominally as follows, but on desirable orders an extra 5 % is not hard to secure:

Butt-Welded Black	57½ %
Butt-Welded Galvanized	50 %
Lap-Welded Black	67½ %
Lap-Welded Galvanized	57½ %
Boiler Tubes, 2¾ inches	65 %
Boiler Tubes, 3 inches	57½ %

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts., CINCINNATI, June 14, 1893.

The Pig-Iron market has reached still lower depths of depression the past week than ever before, not that prices are quotably lower, but there are no buyers at any price. In almost every instance the furnaces have been requested to make no shipments on contracts, because the withdrawal of banking facilities renders it practically impossible to receive and pay for the Iron. The Iron trade is practically suspended, and it seems probable that it will remain so until there is an improvement in the financial situation. There is so little Pig Iron of any kind selling that there is nothing upon which to predicate prices, and while the stronger Southern companies and furnaces are not offering to sell at lower rates, there is no doubt that there are furnaces so pressingly in need of money that a cash buyer could obtain material concessions. It is not that the Iron trade is not in a fairly healthful condition, but it is forced into inactivity by the lack of the usual financial facilities, and in this district the return of the necessary confidence is not likely to be rapid. There is considerable Pig Iron being taken from the East, but even this is on a reduced scale, and the general outlook is anything but hopeful or reassuring for the early future. The Iron Pipe works appear to be the only large melters of Pig Iron, and they contemplate an early reduction. Quotations are as follows:

Foundry.

Southern Coke, No. 1	$13.00 @ $13.25
Southern Coke, No. 2	11.50 @ 11.75
Southern Coke, No. 3	11.00 @ 11.25
Ohio Soft Stone Coal, No. 1	16.00 @ 16.25
Ohio Soft Stone Coal, No. 2	15.00 @ 15.25
Lake Superior Coke No. 1	15.00 @ 15.25
Lake Superior Coke No. 2	14.00 @ 14.25
Hanging Rock Charcoal, No. 1	18.50 @ 19.00
Hanging Rock Charcoal, No. 2	17.50 @ 18.00
Tennessee and Alabama Charcoal, No. 1	15.00 @ 15.50
Tennessee and Alabama Charcoal, No. 2	14.00 @ 14.50

Forge.

Gray Forge	10.50 @ 10.75
Mottled Coke	10.50 @ 10.75

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	16.75 @ 18.00
Lake Superior Car Wheel and Malleable	17.25 @ 17.50

Baltimore.

BALTIMORE, June 12, 1893.

It is very gratifying to be able to note some encouraging features in a market which has been for the last two weeks, we might almost say months, destitute of anything which would give encouragement to dealers in Iron and Steel in any form. The market since our last report has considerably revived. Whether this rejuvenation is due entirely to the near approach of July 1 may be questioned, but in view of the fact that there will likely be no difficulty in getting material from mills not under the thumb of the various labor organizations, we do not think such is the cause. Strange as it may seem, in the midst of the various complaints of difficult collections, one firm doing business throughout the entire South stated to us that their collections during the month of May were much easier than during the same month of 1892. It is very gratifying to find one bright spot in such a dark horizon. The quantity of material in the market has greatly increased, but, of course, with the number of idle mills prices have not shown any indication of an advance.

Bar Iron.—Our quotations on Bar Iron remain unchanged. The market shows little encouragment in this particular class of goods, and the major portion of the orders that are being placed are from dealers' stock. We quote Refined Bar Iron 1 70¢ @ 1.80¢; from dealers' stock 1.80¢ @ 1.90¢.

Plates.—The large lot of material for the Standard Oil Company's work was taken by a Baltimore house complete, including Structural Material and Rivets, against competition from nearly all the neighboring States. The locating of it in this section is very gratifying, demonstrating that the Baltimore merchants are fully capable of taking care of their own market. Plate as a whole has been in greater demand, and orders have been coming to the mills from the Baltimore market with something like encouraging frequency. We quote Tank Steel, 1.80¢ @ 1 90¢; Shell Steel, 2.10¢ @ 2.20¢; Flange, 2.25¢ @ 2 40¢; Fire Box, 2.40¢ @ 2.50¢; Marine, 2.40¢ @ 2.50¢.

Merchant Steel.—This class of material shines out as being in the poorest demand of any we have quoted, and some exceedingly low prices have been made for such business as is in the market. The writer is creditably informed that Open-Hearth Machinery Steel has been sold from stock at 2 05¢. This, however, was an exception, and we continue to quote on Machinery Steel 2.10¢ @ 2.20¢; Tire Steel, 2.05¢ @ 2.15¢; Spring Steel. 2.40¢ @ 2.50¢; Toe Calk, 2.20¢ @ 2.35¢; Cast Tool Steel, 6½¢ @ 7½¢, according to the maker.

Tubes and Pipes.—Boiler Tubes especially have shown some indication that they are still being used. Some very nice orders have been placed for delivery from stock. We quote: Butt-Welded Black, 57½ and 10 %; Butt-Welded Galvanized, 50 and 10 %; Lap-Welded Black, 67½ and 10 %; Lap-Welded Galvanized, 57½ and 10 %; Ordinary Boiler Tubes, 2¾-inch, 70 %; Ordinary Boiler Tubes, 3-inch, 70 and 5 %; Charcoal Iron Boiler Tubes, 2¾-inch, 65 %; Charcoal Iron Boiler Tubes, 3-inch, 67½ %. From dealers' stock prices are 5 % higher.

St. Louis.

(By Telegraph.)

Office of *The Iron Age*, Bank of Commerce Building, ST. LOUIS, June 14, 1893.

Pig Iron.—There is no change to report either in prices or the demand. Consumers are not at present inclined to order in large quantities and are buying as their immediate needs require. Offerings from furnaces are not large, and prices are, generally speaking, steady. Complaints continue regarding the monetary stringency, and some consumers are asking that shipments be delayed so as to enable them to be in a position to liquidate their accounts when due. Stocks in consumers' hands are, of course, light and will continue so until an easier money market makes its appearance. Foundries are not running full time, and the consumption of Iron is restricted somewhat in consequence. Prices remain unchanged and are quoted as follows, for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foundry	$13.00 @ $13.50
Southern Coke, No. 2 Foundry	12.00 @ 12.25
Southern Coke, No. 3 Foundry	11.00 @ 11.75
Southern Gray Forge	11.25 @ 11.50
Southern Car Wheel	17.75 @ 18.25
Lake Superior Car Wheel	17.00 @ 17.50
Ohio Softeners	16.00 @ 17.00
Missouri Charcoal, No. 1 Foundry	13.00 @ 13.50

Bar Iron.—Orders are small and mills are greatly in need of more to keep them running full. Jobbers report a fair demand only at 1.60¢ @ 1.70¢, according to quantity; mills quote 1.50¢ f.o.b. cars East St. Louis.

Barb Wire.—There is no improvement to note in this department. Mills continue to accumulate stock, and, in the absence of orders, prices are weak and unsettled. Jobbers report a fair trade only. Mills quote $2 10 @ $2.15 for carload lots of Painted to jobbers. Galvanized, 40¢ ℔ 100 additional.

Wire Nails.—We continue to quote $1 55 in carload lots to jobbers, which price is occasionally shaded. Jobbers quote $1.70, and report a good trade at that price.

Rails and Track Supplies.—There is no improvement to note in Steel Rails, which are quoted at $31.50 @ $32.50, according to quantity. There are a great many Old Steel Rails on the market, but nothing doing in them. Splice Bars, 1.70¢; Spikes, 2¢; Bolts, Square Nuts, 2 50¢; with Hexagon Nuts, 2 60¢. Old Iron Rails are offered at $17 @ $17.50, East St. Louis.

Pig Lead.—Strong pressure to sell, with but few buyers in sight, has caused a general weakening in price. Offerings are made at 3.50¢, with practically no business resulting.

Spelter.—The position of this metal is practically unchanged. Nominally the market is 3.95¢ @ 4¢, but less than this would probably be accepted. The coal miners' strike has had no effect on the market, and it is hardly probable that it will.

Boston.

Office of *The Iron Age*, 146 Franklin St., BOSTON, June 13, 1893.

The feature in the Iron market at present seems to be the possibility of labor troubles, to begin about July 1, with the mills operated by union men, or men controlled by the Amalgamated Association. It is plainly understood by the union men that the mills employing non-union men have been able to get wages down below the scale, and that the tendency of the whole Manufactured Iron market has been downward for months, but in the face of this, as it is understood, the association has prepared a scale of wages practically making wages about the same as last year. This scale manufacturers positively declare it will be impossible for them to accept. Competition with the mills employing non-union men is too great. Hence it is expected that there will be trouble, and it is believed that it may involve all of the mills employing union men. In the meantime agents here are urging upon buyers the necessity of preparing for a long strike, by buying, or contracting for, Iron. In some cases this feeling has actually resulted in more business, while it has certainly stimulated buyers, and especially builders and manufacturers who have large contracts on their hands, to urge upon agents the importance of completing their contracts as early as possible. This feature has rendered the market on Manufactured Iron and Steel firmer, and actually a little better in some classes of Steel.

Pig Iron.—The market on Pig Iron has been very dull of late. Not that the foundry people have ceased to want Iron; on the contrary, they are yet very busy and using a good deal of Iron. But it is Iron that they bought some months since, to arrive, while owing to the present financial outlook and abundance of Iron offered they are buying Iron for future delivery only with extreme caution. The market on Southern Pig Iron is very little changed, with the following quotations on Iron delivered in Boston: No. 1, $15 @ $15.50; No. 2, $14 @ $14.50; No. 3, $13.50 @ $14. There is considerable Virginia Iron selling, with the market here very steady at $14.50 for No. 1 and $14 for No. 2. These prices are for Iron delivered in Boston. One or two of the larger Virginia furnaces are shut down for repairs. There is yet very little trade in Pennsylvania Iron for this market. Indeed it is explained that there are no agents taking much interest in such Iron, in view of the fact that the foundries are nearly all using Southern Iron. The quotations are nominally steady at: No 1, $14.50 @ $15; No. 2. $13.50 @ $14; Gray Forge, $13 @ $13.50. These prices are for Iron at shipping port. Spot lots would cost some $2 ℔ ton more. Ohio Irons are being used here to some extent and they are quoted at $17.50 @ $18, for Iron delivered in Boston.

Bar Iron.—The position of Bar Iron is about as steady as any feature in the Iron market, with a fair trade in New England Old-Material Iron. It is said that the Blake mill at Wareham, formerly the Warr mill, is full of orders, and at fair prices. Ordinary New England Bars, 1.60¢ @ 1.65¢, from mill; from store, 1.65¢ @ 1.70¢; best Puddled Iron Bars 1.80¢ @ 1.90¢, from mill; from store, 1.95¢ @ 2¼¢. Norway and Swedish Bars are reported a little firmer, though some Iron has arrived in New York, but none here yet. The quotation on Bars and Shapes is at $65 @ $67 ℔ ton.

Building Iron.—The Structural Iron market is quiet in the way of new orders, but there is a feeling of uneasiness among builders in regard to the more than even chances for a strike, as mentioned above, and they are urging agents here for the delivery of their Iron. This feature renders the market firm, and no changes in prices can be noted: Beams and Channels from mill, 1.90¢ @ 2¢; from store, 2.30¢ @ 2¼¢; Tees, 2.20¢ @ 2.30¢ from mill; from store, 2.40¢ @ 2.65¢; Angles, 1.80¢ @ 2¢, from mill; from store, 2.30¢ @ 3.35¢.

Steel, Steel Plates and Steel Rails.—The market on Steel is steady for the same reasons as are mentioned in regard to Structural Iron or Steel. Billets are fairly sustained, while manufacturers are firm on their product for the reason that they fear, some of them, a general suspension of business after the first of July. Quotations on Merchant Steel are at: Bessemer Steel, 2¢ @ 2.10¢; Tire and Sleigh Shoe, 1.90¢ @ 2¢; Sheet, 2¼¢ @2¾¢; American Cast, 6¾¢ @ 7¢; English Cast, 14¢ @ 15¢; American Steel Rails, $29. Steel Plates seem to have lost the rather better demand recently noted, and the mills are in want of orders again. Prices are also easy at: Tank, 1.80¢ @ 1.90¢; Shell, 1.85¢ @ 1.95¢; Refined, 2.05¢ @ 2.12½¢; Flange, 2.10¢ @ 2.12½¢; Fire Box, 2¼¢ @ 2½¢.

Nails.—Nails continue to sell pretty well, though what is termed the spring trade is over. Manufacturers say that the market is steady. Small lots are quoted at $1.50 @ $1.60 ℔ keg for both Iron and Steel Cut Nails, with large lots quoted at $1.45 @ $1.50. Steel Wire Nails are quoted at $1.65 @ $1.70, to the trade here.

Pipe and Tubes.—The demand for pipe is rather quiet, so far as manufacturers and large lots are concerned, and prices are sustained only as far as possible under the circumstances; but the dealers here are having a fair trade with some water contracts, though nothing very heavy.

Scrap Iron is very dull and the market is easier, with No. 1 Wrought at 50¢ @ 52½¢, though the upper quotation is hard to obtain on regular lots. Still selected lots, including Old Horseshoes, will bring 55¢ @ 60¢. The trouble with Scrap Iron is the lack of buyers. Not even the buying of the Blake mill at Wareham is sufficient to start Machine Shop and Light Scrap out of the dull rut into which it has fallen. This class of Scrap is quotable at 35¢ @ 40¢ for Light Iron, 25¢ @ 39¢ for Cast Machine Shop Scrap, and 30¢ @ 35¢ for Wrought.

New York.

Office of *The Iron Age*, 96-102 Reade street, NEW YORK, June 14, 1893.

Pig Iron.—Sellers report the market very dull, and there are indications of increasing pressure to sell by some Southern companies in need of money. It appears that only about one-half of the 17,000-ton Cast-Iron Pipe contract for the East River Gas Company has been let. We quote Northern brands at $14.50 @ $15.25 for No. 1; $13 75 @ $14.50 for No. 2; $12.25 @ $12.50 for Gray Forge, tidewater. Southern Iron, same delivery, $14 @ $14.50 for No. 1; $12.75 @ $13.50 for No. 2, and $13 @ $13.50 for No. 1 Soft; $11.75 @ $12.50 for Gray Forge.

Spiegeleisen and Ferromanganese.—There are not even stray inquiries for Ferromanganese, and the market is utterly lifeless. We quote Ferromanganese, $57 @ $57.50.

Steel Rails.—In standard Rails there is practically nothing doing. Considerable speculation is rife concerning the probable outcome of the meeting of the Rail manufacturers next week. In light sections competition is very lively for the little lots which come up, and 30 and 40 pound Rails are being offered at $29 at mill, with rumors of cutting under that figure.

Track Material.—We quote: Spikes, 1.80¢ @ 1.90¢; Fish Plates 1.45¢ @ 1.60¢; Track Bolts, Square Nuts, 2.30¢ @ 2.40¢, and Hexagon Nuts, 2.40¢ @ 2.50¢, delivered.

Manufactured Iron and Steel.—The largest contract for Structural Iron pending, that for the new St. Luke's Hospital, has not yet been closed. In Plates, the material for the Park avenue improvement has not yet been fully covered. There have been some moderate sales of Plates, but on the whole business is dull, with considerable irregularity in prices. Steel Bars have sold as low as 1.45¢ at Western mill, 2% off for cash in ten days. There is some demand for Hoops. We quote: Beams up to 15 inch, 1.75¢ @ 2¢; 20-inch, 2.10¢ @ 2.25¢, for round lots; Angles, 1.75¢ @ 1.90¢; Universal Mill Plates, 1.80¢ @ 1.90¢; Tees, 1.90¢ @ 2¢; Channels, 1.85¢ @ 2¢, on dock. Steel Plates are 1.70¢ @ 1.90¢ for Tank; 1.95¢ @ 2.10¢ for Shell; 2.10¢ @ 2.25¢ for Flange, and 2.50¢ @ 2.80¢ for Fire Box, on dock; Refined Bars are 1.60¢ @ 1.9¢, on dock, and Common 1.50¢ @ 1.60¢; Soft Steel Bars are 1.50¢ @ 1.60¢; Scrap Axles are quotable at 1.90¢ @ 2.10¢, delivered; Steel Axles, 1.85¢ @ 2¢, and Links and Pins, 1.85¢ @ 2.10¢; Steel Hoops, 1.80¢ @ 1.90¢, delivered; Cotton Ties, 80¢ @ 85¢ ℔ bundle, at mill.

Old Material.—We quote Old Iron Rails, nominally, $15 @ $15.50, and Steel Rails, $12 @ $12 50.

Financial.

Fresh evidences have cropped out during the past week of the feeling of distrust which prevails throughout the country. It is a significant fact that the wave of uncertainty which has swept over the financial and mercantile community has been rising among the large number of small people who rely upon savings banks. While the Chicago flurry is a matter of past history, the runs on Detroit, Kansas City and Omaha banks prove that uneasiness was not by any means local. It is a striking fact that there seems to have been no discrimination whatever in the runs made upon the savings banks thus far. The strongest institutions seem to be attacked with the weaker.

There have been a number of commercial failures during the week, some of them of considerable importance, and matters in the financial markets have again shaped themselves toward increased stringency. For the moment the question of gold shipments abroad is forgotten and the heavy withdrawal of funds from Eastern money centers to the West is commanding attention. This has reduced the supply of loanable funds and has advanced the rate of interest to about 8 to 10 per cent. on call loans, first-class Stock Exchange collateral, while commercial loans have remained practically unchanged. There is a diversity of opinion concerning the outlook for further gold shipments. If grain sales continue heavy, the exchange market will not admit of exports of the yellow metal. The magnitude of the wheat export sales has not yet been measured. The sharp advance in ocean freights and the lowering of sterling exchange indicate that it is probably much larger than has appeared on the surface. Any sharp advances in wheat, however, might cause a reselling to take profits and in that way might defeat the favorable influences which have been at work.

Cleveland.

(*By Telegraph.*)

The Ore market continues dull, with some prospects of higher prices for the near future. No large sales have been made during the week. Bessemer Ore is firm at $3.75 ℔ ton, f.o.b. vessel Cleveland. The large purchasers appear to be holding off. Several large sales are on the tapis and will probably be consummated during the latter part of this week, or early next week. The Pig Iron market is extremely dull, with no sales. The price for Bessemer ranges from $13.50 to $13.60 ℔ ton.

Metal Market.

Pig Tin.—In the speculative arena the "bull" interest have not only held the advantage they gained last week, but gradually forced the upward movement of prices until an advance of about 65¢ ℔ 100 lb was scored on current month delivery and nearly the same for July and August, making in all an advance of about 1½¢ ℔ lb from the extreme lowest point touched last month. There has been no evidence of broader speculative interest on "long" account nor of anything suggesting "bear" consternation. As for the statistical position, it may be construed as sentiment dictates. The one prominent feature is that the recognized "bull" leaders, with some trade assistance, have effectually manipulated prices in a manner calculated to somewhat allay the uneasiness of customers who loaded up heavier than usual during the time that prices dropped from about 21¢ to 19¢ ℔ lb. This facilitates deliveries at the present time and serves to cut down the "visible" supply in a manner. There was some display of aggressive "bull" spirit at the Metal Exchange on Tuesday, when contracts involving about 75 tons were turned at 20¢ @ 20.05¢ for June and 20½¢ for August delivery, but selling prices dropped on Wednesday to 19 90¢ for prompt and 19.95¢ for June delivery. The arrivals here thus far this month have been 1340 tons and there are now 965 tons on the way from Europe.

Copper.—Lake Superior Ingot Copper has been sold during the past week at 10¾¢ ℔ lb. There were rumors of some large contracts having been made at as low as 10½¢, and back of those rumors is the substantial fact that a great deal of Electrolytic Copper has latterly been shipped in where the Lake product formerly had an almost clear field. In other words, the surface appearances are that the suggestion of something of this kind, which was given a short time ago in the editorial columns of *The Iron Age*, is materializing in no uncertain form. On Electrolytic Copper the popular quotation is 10½¢, but it is an open secret that sales have been made at 10⅝¢, and there are rumors of business at as low as 10¼¢. Common casting Copper is quoted at 10¢, but that price seems to be an extremely high one at the present time.

Pig Lead.—Immediately after our last week's review, sales were announced of several hundred tons Common Domestic at 3.72½¢ @ 3.75¢, and the official bullion price dropped to 3.70¢. Subsequently about 500 tons were taken for June and July shipment at 3¾¢, and the latter price fairly reflects market value at this writing. Stocks here are moderate, and advices from the West are to the effect that the surplus there is rather below the average, but the power of the leading buyers, along with the condition of the money market, still offsets the statistical position.

Spelter.—The market is bare of new feature. The offering from primary points has been somewhat reserved of late, and the demand from Eastern consumers continues extremely tame; hence a slow market, yet apparently steady undertone to values. Current quotations are 4 25¢ @ 4.30¢, Eastern delivery, for near future shipments.

Antimony.—Of small parcels there has been a fair movement, and the market is quite steady, with Hallett's, quoted at 9½¢ @ 10¢, L.X. at 10¢ @ 10½¢ and Cookson's at 10⅝¢ @ 10¾¢, in wholesale lots.

Tin Plate.—Buyers are still taking hold in a very indifferent manner. Their purchases of spot stock are invariably small and the most attractive inducements offered thus far fail to stimulate interest in future deliveries. Prices are unsettled and lean more or less in buyers' favor. Spot quotations are as follows: Coke Tins — Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., $5.45; Bessemer full weight, $5.35; light weights, $5.05 @ $5.07½ for 100 lb, $4.92½ @ $4.95 for 95 lb, $4.85 for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.60 @ $5.65; Siemens Steel, IC basis, $5.75; IX basis, $6.85. Charcoals—Melyn grade, IC, $6.50; Crosses, $8; Allaway grade, IC, $5.65; Crosses, $6.80; Grange grade, IC, $5.70; Crosses, $6.87½. Charcoal Ternes—Worcester, 14 x 20, $5.70; do., 20 x 28, $11.35; M. F., 14 x 20, $7.25; do., 20 x 28, $14.50; Dean grade, 14 x 20, $5.35 @ $5.37½; do., 20 x 28, $10.50 @ $10.70; D. R. D. grade, 14 x 20, $5.10; do., 20 x 28, $10.30; Wasters—S. T. P. grade, 14 x 20, $4.87½; do., 20 x 28, $9.25; Abercarne grade, 14 x 20, $4.87½; do., 20 x 28, $9.20.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, June 14, 1893.

The market for Pig Tin has been stronger, with sales of prompts at as high as £87. 15/ on Tuesday. The rally was due in good part to strong advices from New York. There has been some reaction due to realizations and reports of troubles in Paris. The market is at present rather feverish, but producers are reluctant sellers. Wednesday's operations showed very firm tone, with prices up to £88 for prompt delivery and £86 for three months' futures.

Copper has been firmer, speculation being stimulated somewhat by easier money and improved trade returns, together with covering of "short" by bear operators and more buying for outside account. The latter has been chiefly in forward deliveries, sellers of which are somewhat reserved. The improvement has been confined chiefly to G.M. B. Consumers still buy indifferently, but it is believed that their stocks are low. At the close Merchant Bars were quoted at £44 7/6 for prompt delivery, and £44. 17/6 for three months' futures. Best Selected English about £48. 5/.

The market for Tin Plate is sluggish, and prices are weak. Buyers take only sufficient Plates to meet immediate wants, believing that lower values are near. Exports last month were 37,000 tons, against 39,000 tons in May, 1892. Shipments to the United States were 26,000 tons and 31,000 tons respectively. Output has been restricted somewhat by scarcity of water. Prices in the Liverpool market are as follows:

IC Charcoal, Alloway grade.....13/3 @ 13/9
IC Bessemer Steel, Coke finish. ...12/0 @ 12/3
IC Siemens " " " .....12/3 @ 12/6
IC Coke, B V. grade 14 x 20.....12/0 @ ....
Charcoal Terne, Dean grade.....13/6 @ 14/

Spelter has receded to £17. 12/6 and the market is weaker. Continent buyers seem to have withdrawn.

Lead has remained almost stationary at £9 2/6 @ £9. 5/ for Soft Spanish, and the market is slow.

Pig Iron warrants have been firm, with an advance made to 41/4 for Scotch and 34/6 for Cleveland, but a slight reaction has taken place the last few days. Hematite warrants were quoted at 44/7½ and makers' brands at 45/6, f.o.b. There have been no further changes in the Steel trade and business generally is slow.

Pittsburgh.

(*By Mail.*)

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, June 13, 1893.

As announced elsewhere in this issue, the Iron wage scale has been formulated by the Amalgamated Association and will be presented to the manufacturers for their signatures within the next few days. While the new scale shows only two or three changes over the one now in force, it is believed that the manufacturers will resist the provision contained in it that prevents three turns from being made in the boiling department when practicable. It will be remembered that this privilege was granted to the manufacturers last year, and when a local concern endeavored to operate three turns in their puddling department a strike resulted, which was won by the firm, and the plant is now non union. It is not expected that the other changes proposed in the new scale will be seriously objected to by the manufacturers. Nothing of a definite nature can be said at this time as to the probable outcome of the conferences, but it is not expected that there will be any serious trouble. It is reported that the Tin-Plate manufacturers will insist on an agreement requiring the workmen to accept a reduction in wages should Congress make a reduction in the present duty on Tin Plates.

The week in all departments of the Iron and Steel trades was exceedingly quiet, with prices on many lines showing a downward tendency. Some surprisingly low prices have been named on recent transactions, when the seller was in need of money and the buyer was in position to take advantage of the situation. In this district the money market seems to be growing worse, and even the most sanguine cannot see any indications of early improvement.

Structural Material—No special lots have been placed since our report of last week. However, local mills are fairly well employed on small orders, which are coming in right along, and which in the aggregate amount to a fairly large tonnage. A bill has been recently introduced into Pittsburgh Councils, which provides that after its passage all buildings above three stories in hight which may be erected hereafter, or any buildings which may be altered by adding additional stories, must contain Beams and other Structural Shapes, and that the in spaces must be filled with non-combustible material. Should the bill become law it will undoubtedly lead to a largely increased consumption of Steel Shapes.

The bill has been referred to the Public Safety Committee, and it is stated that considerable opposition is already being manifested against it. Prices are unchanged, and we continue to quote Beams up to 15 inches at 1.60¢ @ 1.70¢, f.o.b. cars Pittsburgh. It is intimated that even the first-named quotation has been slightly shaded recently. Angles and Universal Plates we quote at 1.60¢ @ 1.70¢; Tees, 1.75¢ @ 1.85¢, and Z Bars at 1.65¢ @ 1.70¢.

Plates.—The demand for Tank Steel and Boiler Plates shows a slight increase and a fair amount of business has been booked within the last week or ten days. Other kinds of Plates do not show any increase in demand, and prices are unchanged. We repeat quotations of last week, as follows: Tank, 1.50¢ @ 1.60¢ according to order; Shell, 1.75¢ @ 1.90¢; Ordinary Fire Box, 2.25¢ @ 2.50¢; Special, 3¢ @ 3.50¢; Flange, 1.85¢ @ 2¢.

Bars.—A fair amount of business is going, consisting principally of orders for small lots. In view of the uncertainties surrounding the settlement of the wage scales, it was expected that buyers would anticipate their wants largely during this month, but such has not been the case to any considerable extent. The reason for this probably lies in the fact that there are a good many non-union mills in the Pittsburgh district, and these will continue in operation right along, only being idle during the time necessary repairs are being made. Prices continue very low and when a good order is in the market the competition to secure it often results in prices being named which are almost beyond belief. We continue to quote Steel Bars at 1.55¢ @ 1.60¢, and it is reliably stated that some contracts have recently been taken based on 1.50¢, half extras, at mill. In the Mahoning Valley Bars are held at 1.40¢ @ 1.45¢, half extras, with the first named as the ruling price.

Ferromanganese.—The demand continues quiet with prices ruling at $58 @ $58.50, f.o.b. cars Pittsburgh, for 80% domestic.

Steel Rails.—The market does not show any improvement, and the outlook for anything better in the near future is not encouraging, to say the least. The local mill continues on Rails, though not to its full capacity.

Wire Rods.—Very little is doing, and the impression prevails that the proposition to close down during July will be largely observed. We are not advised of any transactions in Rods during the past week, and continue the quotation of $29, f.o.b. Pittsburgh. Even this low price for Rods has been shaded within the last month or two.

Muck Bars.—There continues to be a fair demand, with no improvement in prices. We continue to quote best grades of Muck Bars at $23.75, delivered at buyers' mill, and are advised of a sale within the last week of 500 tons at that price. Off grades of Muck Bars have been sold here during the past month or two at less than the above price.

Wire Nails.—A meeting of Wire-Nail manufacturers was held in Cleveland on Wednesday of last week and the proposition to close down the mills during July came up for discussion and was favorably considered. However, no agreement was made to close during July, but another meeting will be held within a short time, when it is probable that such action will be taken. The Wire Nail market is in a very unsatisfactory condition to makers, both as regards demand and prices, and very little business is doing. Jobbers who made contracts early in the year and who have not disposed of all their Nails are scouring the market for buyers and are offering Nails at extremely low prices. We continue to quote Wire Nails at $1.40 in carload lots, while $1.35 continues to be done for desirable business. The Cut-Nail market does not show any change worthy of note, the demand being only fair and prices unchanged. We continue to quote Cut Nails at $1.10 base, in Wheeling district.

Pipes and Tubes.—A moderate amount of business is going, the demand at this time being principally for Boiler Tubes and Merchant Pipe. The falling off in demand during the past month has had the effect of weakening prices, and it is understood that the official discounts are being shaded to considerable extent.

Sheets.—Business has fallen off to some extent within the past week or ten days, although a good many orders, booked some months ago, remain to be filled. As a consequence of this falling off in demand, prices are somewhat easier, though not quotably lower. We continue to quote No. 24 Common Sheets at 2.45¢ @ 2.50¢; No. 26, 2.55¢ @ 2.60¢; and No. 27 at 2.65¢ @ 2.70¢. Very little, if any, advance is now charged for Steel Sheets over Common Sheets. The demand for Galvanized Sheets is heavier than for Black Sheets and mills in this district continue in operation to the full capacity. We quote Galvanized Best Bloom at 70 and 10% in carload lots.

Barb Wire.—In sympathy with Wire Rods and Wire Nails, the demand for Wire has fallen off to considerable extent and prices have shown a weaker tendency. We quote Galvanized at 2.35¢ @ 2.40¢, Painted at 1.95¢ @ 2¢, in carload lots.

Connellsville Coke.—For the week ending June 3 there were 12,160 ovens in the Connellsville region in blast and 5154 idle, with a total estimated production for the week of 116,957 tons. Compared with the production of the previous week this was a decrease of 3324 tons. Negotiations are now on foot between Coke operators and furnace interests looking to the renewal of contracts which expire during this month, and we are advised that a number of contracts have been renewed at prices which have not as yet been made public. We continue to quote Furnace Coke at $1.60, and Foundry Coke at $2.15 to dealers and $2.30 to consumers.

Freights.—Rates on Cotton Ties from Pittsburgh and points taking Pittsburgh rates to Texas cotton points have been reduced to 45¢ ₱ 100 lb.

(*By Telegraph, June* 14, 12.30 *p.m.*)

Pig Iron.—The market is absolutely featureless and a very limited amount of Iron is changing hands. The fact that there will be a partial shut down among the Steel plants after July to arrange the wage scales and make repairs is weakening the price of Bessemer to some extent and it has been offered this week on the basis of $13.40 Pittsburgh. Gray Forge and Foundry Iron are also in light demand at unchanged prices. We quote as follows:

Neutral Gray Forge	$12.00	@	$12.25, cash.
All-Ore Mill	12.50	@	"
No. 1 Foundry	13.00	@	13.85 "
No. 2 Foundry	12.60	@	12.85 "
Charcoal Foundry No. 1	17.00	@	18.00 "
Charcoal Foundry No. 2	16.50	@	17.00 "
Bessemer Pig	13.40	@	13.50 "

We note a sale of 1000 tons of Bessemer for June and July delivery at $13.40 Pittsburgh.

Billets.—Buyers of Billets for June delivery appear to have covered their requirements, and there has been very little Steel sold during the past week. Consumers believe that Steel for the third quarter will not be any higher than it is now, with a probability that it will be lower, and are staying out of the market in the belief that when they are ready to buy they will be able to do so to better advantage. The possibility of labor complications is also a factor in the situation, and neither makers nor consumers desire to make contracts until all doubt in the matter has been removed. Sellers continue to hold June Steel at $21.75, but this price would probably be shaded if the market was thoroughly tested. We note a sale of 1000 tons of Billets for August delivery at $21.50, at maker's mill.

The Mitchell Iron & Steel Company of Pittsburgh have been granted a charter of incorporation, with capital stock of $1,000,000. The directors are Edwin W. Smith, Winfield B. Carson, Alexander S. Guffey, Ernest W. Beach and George B. Motheral, Pittsburgh.

The Pittsburgh Architectural Iron Works of Pittsburgh have been granted a charter of incorporation, with a capital of $150,000. The directors are John A. Butz, G. C. Dellenbach, William Eberhardt, Allegheny; William B. Neal, Pittsburgh; H. P. Butz, Uniontown.

The Tidewater Steel Works of Chester have won an important suit brought against them by the Johnson Steel Company of Johnstown. It was an action for an alleged infringement on the Moxham patent for steel rails, made by the Johnson Company. The lower court gave a verdict in favor of the Tidewater, when an appeal was taken to the Supreme Court. Recently Judge Butler, of the latter court, affirmed the decree of the lower court.

The patent coke drawer which has been undergoing tests at the Valley Works of the H. C. Frick Coke Company in the Connellsville region for several weeks, has been shipped back to the American Coke Drawer Company of Cincinnati, who are the builders of the machine. It is announced that in some respects the patent coke drawer was a success, but there were obstacles in the way of its successful operation in the Connellsville region that could not be well overcome. As proven by the tests made at the Valley Works, the drawing of coke could be accomplished in less than one-third of the time now required by use of the patent coke drawer, but the cost of the machine and the labor that would be required to prepare the ovens before the drawer could be used would more than offset any saving effected by its use.

HARDWARE.

Condition of Trade.

THE BUSINESS IN HARDWARE, as in trade in general, is much affected by the financial uneasiness which so generally prevails, and as a rule merchants are only purchasing goods which are required for their trade in the near future. Manufacturers and jobbers are also refraining from urging sales with as much enterprise as usual, unless there is a prospect of their receiving prompt payment, there being a disposition to restrict business closely to cash transactions. There is, however, evidence of a somewhat improved demand, many of the jobbing houses reporting a fair, though not heavy, business, and on the whole, a more satisfactory trade than a few weeks ago. In the matter of prices there is but little change. The market is not characterized by a strong tone, but the indisposition to force goods on the market has a tendency to keep prices from being cut to any great extent. Most houses are at present giving their attention to the matter of collections, in regard to which a good deal of complaint is made, though in this respect the situation is probably a little improved.

Chicago.

(*By Telegraph.*)

The condition of the Shelf Hardware trade has changed materially within the past week. Business is now moving along vigorously and some jobbers say their orders for the past few days have been up to their capacity for handling goods. The demand is general, running through the whole line, except staple goods. Collections are also growing better. City collections jumped up last week, notwithstanding the panicky feeling among savings depositors. It is presumed that many of them paid accounts with the money which they drew out, thus enabling merchants to pay their bills more promptly.

St. Louis.

(*By Telegraph.*)

Continued improvement in the demand for shelf goods is the almost universal report of jobbers. The weather is becoming settled, and an improved demand for many lines is noted, particularly in Builders' Hardware and supplies. The tight money market is causing the volume of trade to show some loss, but the conservative course adopted by the jobbers seems the proper one to pursue. The trade in Gasoline Stoves is very large, and jobbers who handle Stoves and Ranges report a good inquiry for these goods. Complaints are heard regarding collections, which are, doubtless, well grounded. Cut Nails are weak, and some low prices are made to secure trade. Wire Nails and Barb Wire fail to improve either as regards price or demand. Taking the general condition of the market into consideration, it looks better than it did one week since, especially so far as the money market is concerned, which naturally benefits the Hardware trade.

Baltimore.

CARLIN & FULTON.— From present indications the growing crops promise abundant harvests and consequently there is an active demand for all seasonable goods, such as Scythes, Snaths, Lawn Mowers, Freezers and Preserving Kettles, but we regret that with an extraordinary demand for Wire Cloth there is no ability on the part of the manufacturers to supply it.

In general Hardware and Cutlery trade is anything but good, but we, however, expect little else at this time of the year, especially from our Southern market. It is too early yet to make any predictions as to whether trade will open up briskly or not after July 1, and while ordinarily, with the finances of the country in a normal condition, the requirements of our customers would result undoubtedly in a heavy trade, we fear that until after Congress shall have acted upon the silver question buyers will hardly feel disposed to do more than purchase for their most pressing wants.

Philadelphia.

SUPPLEE HARDWARE COMPANY.— Some little to our surprise, trade during the past two weeks has taken quite a jump, and order boys have been kept busy rushing off memorandums received from salesmen and on account of mail orders.

From several sections our salesmen report that the retail trade are having very satisfactory business, which is shown in their offerings to the jobbing trade in return. Orders include frequently requests for hurried shipments on Refrigerators, Screens, Freezers and such seasonable goods. The most noticeable part of the business that seems below the average is on Wire, Wire Nails and kindred goods.

Notwithstanding the unsettled, and, we might add, panicky feeling that has existed in the money market, prices as a rule have readily held their own, and on general Hardware there has been little or no change; probably as many advances in a small way as there have been declines.

Among the exceptions might be mentioned Wire Nails, which have weakened considerably from prices quoted a few weeks since, and they now touch the same low-water mark that they reached early in the year. At these quotations manufacturers are claiming a loss, and it remains to be seen whether prices will be held where they are or whether the manufacturers will be able to stiffen them up. There are rumors of an agreement among manufacturers of Wire Nails to close their mills during the month of July, hoping thereby to cause a scarcity and make a demand enabling them to secure what they call a living profit on their output.

The market on Screen Cloth is in about the same condition as it has been for the last two weeks, there being scarcely any obtainable in this location. What shipments have come to the wholesale trade have been quickly distributed, probably on account of back orders. At present the demand from the retailers is not very great; many of them have increased their purchases on made-up Screens, with the idea, as far as possible, of inducing their customers to purchase a Screen of that description, rather than have them made to order.

Collections, unfortunately, show little or no improvement, and can be classed as fair to good only.

Portland, Ore.

CORBETT, FAILING & ROBERTSON.— There is nothing new in the situation throughout this Northwest country, except that we seem to be nearing a crisis that has been expected for the past six months. The bank failures at Tacoma and Spokane are but the natural results of the way in which business has been conducted for the past three or four years in these towns, where conservative people are called "mossbacks." Rather than to build up gradually and on their own resources they have chosen to enlist much outside capital; and now that the money can find profitable employment at home, lenders wish to have same returned. The banks have in loans and discounts, if they are good, ample resources to meet all liabilities, but it will probably take some time to realize on them. Meanwhile a halt is called all along the line, and business is at a standstill.

We do not hear much from the silver men now, and the general hope is that this section may be kept on the gold basis, as it has been up to this time. Notes and other obligations are all drawn payable in gold.

While the transcontinental railroads are now making low rates to the coast, they cannot get much business, as the jobbers are well supplied with goods that came via Cape Horn at still lower rates than they make.

Prices still continue to decline, Iron, Nails and Rope all being at what would seem must be near the bedrock.

Louisville.

W. B. BELKNAP & Co.—After a period of undoubted dullness during the latter part of May and the first few days of the current month, the Iron and Hardware markets show decided slight signs of animation. The mills report themselves comfortably busy, cleaning up contracts for June delivery. Many of them seem averse to entering into obligations for July and August, until the labor scale is adjusted for the coming year. Some, however, do not betray any apprehension of trouble, and predict that mills will be running as usual, except during the usual shut down for repairs on account of midsummer heat.

The general jobbing business, fortunately, has been but little affected by the prevalent financial stringency, with its recent not infrequent disastrous results to speculative enterprises. The country is having a severe object lesson in political economy, viz., of the folly of attempting to keep a less valuable circulating medium on a par with the more valuable and generally accepted one between nations. A fine object lesson has also been given by the way in which Chicago banks withstood the heavy run on their resources from June 5 to 8. That the banks stood this strain without any signs of weakness is a remarkable event in the financial history of the country and should go far toward the re-establishment of public confidence.

The sensitiveness of the largest markets was readily demonstrated by the way in which stocks and other securities in New York responded immediately to the President's open letter. More sound advice has rarely been condensed into small space. Every word was calculated to restore a normal state of business as far as any public utterance could do it. Both of our local morning papers are in favor of repealing the Sherman act.

The crops hereabout promise well. The railroad earnings are not without their significance, and most of those published show an increase. Altogether we have more or less ground to expect a fair business during the coming season. We believe that the products of our country will be wanted and used at home and abroad. It may be that all we want is a good spell of weather and good public health to bring us out at the end of the year with flying colors.

Cleveland.

THE W. BINGHAM COMPANY.—There has been quite a marked improvement in trade in the past two weeks, although it is not quite up to the expectations of the early spring, but can be reported as "mediumly fair." Prices have ruled with a steadiness that is quite remarkable, all things considered. The demand for Wire of all kinds is still good. Wire Nails are but little called for and prices are weak. The manufacturers held a meeting here last week, and agreed to shut down during the entire month of July. This curtailing of production should, and no doubt will, give a firmer tone to the market. Collections are only fair.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—The past two weeks have shown but little of special interest to the trade. Jobbers are growing still more disposed to hold goods rather than to sell them to dealers who cannot pay for them until considerably beyond regular terms. This has the tendency not only of restricting trade to some extent, but also of stiffening prices, so that the market is firm in most lines and is likely to stay so. There are no excessive stocks of goods to be worked off and seasonable goods have been selling satisfactorily. If the general financial condition of the country had been favorable, it is certain that the trade in the Northwest this season would have been very satisfactory, notwithstanding the short crops in some sections. Collections are about up to those of average years, though this is to be attributed in part to the fact that everybody is pushing them. It is now more important to get in money than to sell goods.

If the present financial condition is to continue through the summer, it will restrict trade still more, as commercial houses will not "keep out so many sails" as to invite disaster. It is greatly to be hoped that the present more favorable prospects may grow still better and that the worst is past.

The great commercial interests of the country are in shape to enjoy a prosperous year if only the disturbing factors in the financial situation shall be removed.

We believe the solid interests at stake, controlled by the practical good sense of financial and business men, will insist unalterably on the repeal of the (so-called) Sherman bill, and that this shall be done also without making any concessions that would but perpetuate in some other form the evils from which the country is now suffering. Silver men have had their way now too long, and the whole country is paying dearly for it.

The present condition of crops throughout the Northwest is remarkably promising; in fact, it has never been more so.

New Orleans.

A. BALDWIN & Co.—A very slight improvement is perceptible owing to the fact that the river conditions are not quite as serious as they were ten days ago. Although there is no active movement in any special line, still a fair summer business is being experienced in this section. The rainy spell of the past week has somewhat demoralized the building trade locally, but it seems to be in a slightly improved condition just at present. Our Texas trade exceeds our anticipations somewhat, as the crop prospects in that State are very flattering, and they have not the drawbacks to contend with that the States bordering on the Mississippi have. Altogether the situation shows somewhat of an improvement.

Notes on Prices.

Cut Nails.—During the past week there has been only a moderate amount of business in Cut Nails, and prices remain on substantially the same basis as at our last report. The market is fairly represented in the East by the quotation of $1.05 on carload lots at mill, though it is understood that this figure has been slightly shaded in some special cases. Small lots from store in New York are held at about $1.25.

Chicago, by Telegraph.—New business is rather quiet, and specifications are coming in slowly on old contracts. Factory prices are still nominally held at $1.25, but competition for business is less keen from outside concerns, and this price is more nearly maintained at present than a week ago. Small lots are selling from stock at $1.35.

Wire Nails.—The Wire-Nail market continues irregular with a fair, but not especially heavy, demand. The low prices developed had the effect of securing some large orders, but in the present condition of the money market the trade are not disposed to purchase on speculation, their orders being confined for the most part to their early requirements. During the week sales have been made at $1.35, f.o.b. mill, and while some manufacturers refuse to meet this figure it is intimated on the other hand that it has been slightly shaded by others. At the meeting held last week in Cleveland nothing definite was accomplished except the agreement to shut down the mills during July. The feasibility of effecting a strong organization among the manufacturers is, however, under consideration, and it is thought by some well-advised parties that the prospect for accomplishing something in this direction is more favorable than when the attempt was last made. It is thought by some directly interested that an organization by which the production would be limited and the price held at a remunerative figure is the only means by which the extremely unsatisfactory condition of the market in this line can be improved.

Chicago, by Telegraph.—The recent drop in the factory price of Wire Nails leads to a great deal of business. Quite a number of heavy contracts were taken at the low rates prevailing last week. The demand continues in a small way, so that manufacturers are more encouraged than they were. They are inclined to think that prices have seen

their worst. Quotations from factory are pretty generally $1.50, Chicago. Prices from stock for small lots are maintained at $1.65 to $1.70, with concessions to best buyers.

Barb Wire.—Quotations on Four Point Galvanized continue on the basis of $2.45 to $2.50 for carload lots at mill. The volume of business is fair but not heavy.

Chicago by Telegraph.—Manufacturers report an improved demand for Barb Wire from factory. Buyers are hurrying shipments, indicating that stocks are low. The orders recently received have in many cases come by telegraph. Quotations are continued at 2.15¢ for carload lots of Painted and 2.55¢ for Galvanized. Local jobbers report their trade quiet, but quotations are steady at 2.30¢ and 2.70¢ respectively.

Cordage.—Some of the manufacturers connected with the National Cordage Company are again in the market. The supply of Rope is thus increased, and this fact, together with the condition of the Hemp market, has a tendency to weaken prices a trifle. For large lots, f.o.b. factory or New York, the base prices are now as follows, subject to a discount of 1½ per cent. for cash:

	Per pound.
Manila	$0.08½
Sisal	.07
New Zealand	.06½

Tacks.—Atlas Tack Corporation, 508 Sears Building, Boston, issue under date, June 5, a revised discount sheet on Hardware list goods, which is, however, in the main the same as their last. Revised quotations are, however given on Basket and Trimmers' Tacks and Trunk and Clout Nails, the discounts on which are now as follows:

	Per cent.
Basket and Trimmers' Tacks, Lanc.	52½
" " " S. S.	55
Trunk and Clout Nails, black	65
" " " tinned or coppered	67½

These prices are subject to the regular additional discount of 25 and 2 per cent. for cash.

The Atlas Tack Corporation also issue under date June 5 a revised Shoe Finders' List embodying many changes, a large number of which are in the way of advance.

Shot.—During the past week or two there has been a feeling of uncertainty in the Shot market on account of the refusal of the Colwell Lead Company, 63 Centre street, New York, to renew the agreement with the American Shot and Lead Company in regard to the maintenance of prices. A feeling prevailed that perhaps in this condition of things there might be a break in prices of Shot and that the competition between the American Shot and Lead Company and its competitors, Colwell Lead Company and Tatham & Brothers of New York, James Robertson & Co. of Baltimore and T. W. Sparks of Philadelphia, might develop lower quotations. We are advised, however, that the agreement has subsequently been renewed and that the situation remains the same as prior to June 1. It remains to be seen, however, whether the market will be maintained with entire evenness, there having been for some time rumors of slight irregularities.

Tackle Blocks.—There has of late been little improvement in the Tackle-Block market, which continues in a demoralized condition. Some of the manufacturers, however, refuse to meet the extreme prices made by some of their competitors.

Eureka Trammel Points.—These goods were described in a recent issue as put on the market by W. M. Morton & Co., New Haven Conn. They are sold to the trade at the following prices:

No.	Per dozen sets.
1	$4.00
2	6.00
3	8.00
01	6.00
02	8.00
03	10.00
2, points only, per dozen	2.00

Star Automatic Feed Bag.—This article was described a few weeks ago as put on the market by the Star Automatic Feed Bag Company, Foxboro, Mass., and 95 Broad street, New York. The bag is sold to the trade at from 75 cents to $1.50, according to the quantity of leather trimmings.

Acme Hammerless Revolver.—The Hopkins & Allen Acme Hammerless Double-Action Revolver, which is described on another page and put on the market by Hulbert Bros. & Co., 26 West Twenty-third street, New York, is made in 32 and 38 caliber and quoted at $3.50.

Royal Sash Fastener.—This article, of which a description appears in another column, is put on the market by Sargent & Co., New York, and New Haven, Conn. It is sold from the following list, which is subject to a discount of 60 per cent.:

No.		Per dozen.
T 504 A,	Tuscan Bronzed	$ 1.10
504 A,	Berlin "	1.50
K 504 A,	Tokio "	2 80
508 A,	Bronze Metal	7 25
M 508 A,	Imperial Bronze	7.25
A B 504,	Antique Copper Finish	5.00
Y 504,	Yeddo Bronzed	4.20
508 P,	Highly Polished Bronze Metal	7.60
B B 504,	Blue Black, "Rustless Iron"—Finish	7.60
A B 514,	Antique Copper Finish	7.50
Y 514,	Yeddo Bronzed	6.60
518 P,	Highly Polished Bronze Metal	12.00
B B 514,	Blue Black — "Rustless Iron"—Finish	12.00

The goods are packed with screws. Bronze Metal, Imperial and Blue Black are packed half-dozen in a box, all others being packed one dozen in a box.

Gun Cleaning Sets.—The Eureka new Cleaning Sets, manufactured by the Bridgeport Gun Implement Company, 313 and 315 Broadway, New York, and Bridgeport, Conn., are illustrated in this issue. They are sold at the following list, subject to a discount of 45 per cent.:

	Per doz.
No. 164—10, 12, 14, 16 and 20 gauge	$15
No. 964—10, 12, 14, 16 and 20 gauge	30

Ideal Dipper.—Sidney Shepard & Co., Buffalo, N. Y., are manufacturing this Dipper of IXX tin plate with the handle riveted to the bowl, in one size, as follows: Diameter of bowl, 6½ inches. Depth of bowl, 3¾ inches. Length of handle, 9½ inches. The Dippers are sold at $2 per dozen net.

Kettle Cleaner.—Clauss Shear Company, Fremont, Ohio, are manufacturing this article, which was illustrated in a recent issue. The Cleaner is sold to the trade at $2 per dozen.

Hot-Air Dampers.—Excelsior Hot-Air Dampers are manufactured by the Excelsior Steel Furnace Company, 110-114 South Jefferson street, Chicago, Ill., in sizes from 7 to 16 inches in diameter. They are sold at a discount of 50 per cent. from the list as published in their 1893 catalogue.

Sensible Saw Handle.—This article was described in a recent issue. It is put on the market by the Gwinner Mfg. Company, Canton, Ohio, and is sold to the trade at $3 per dozen pair, subject to a discount of 40 per cent.

Cherry Stoner, No. 12.—This article, a description of which has appeared in our columns, is sold to the trade at $12 per dozen, subject to a discount of 25 per cent. The Stoner is put on the market by the Enterprise Mfg. Company of Philadelphia, Pa.

Puritan Coffee Pot.—Bronson Supply Company, Cleveland, Ohio, and 72 Beekman street, New York, are manufacturing this article, a description of which appeared in a recent issue. The Coffee Pot is sold from the following list, which is subject to a discount of 25 per cent.:

No.	20	30	40	50
Pints	2	3	4	5
Per dozen	$6.50	$7.50	$9.00	$10.50

Columbia Roaster and Baker.—This article is described in another column. It is put on the market by the Star Baker Company, Bellville, Ohio. The device is sold from the following list, which is subject to a discount of 55 per cent.:

Number.	Length. Inches.	Width. Inches.	Hight. Inches.	Smooth Iron.	Russia Iron.
1—Small family	14½	9	7	$1 00	$1.50
2—Medium	16½	10¾	8	1 35	2.00
3—Large	18½	11½	9	1.50	2.30

Glass.—Locally there is little of interest to report in the Glass market, as the situation remains practically unchanged since our last report. Some Glass is changing hands, but the demand is light, and there is apparently no indication that trade will improve during the present month. It is believed that official prices are well sustained, but it is a question whether such a condition would exist if the

time for the annual closing of the Glass factories was not near at hand. This, with the reported scarcity of single strength Glass in manufacturers' hands, and the pledges made by the members of the National Window Glass Company, have given prices unusual strength for a time when demand is as light as at present. Imported Glass has shown no improvement, and unchanged quotations of 75 and 10 and 5 per cent. discount nominally represent the price at which it is sold. It is reported that the National Plate Glass Company have decided to close their factories until July and perhaps longer, unless demand improves and present stocks are considerably reduced. We quote prices unchanged as follows: American Window Glass, 2000 boxes at one time, 80 and 10 and 10 per cent. discount; carloads, 400 boxes, 80 and 15 per cent. discount; less quantities than carloads, 80 and 10 per cent. discount. Freight allowed on car lots and over, not to exceed 17½ cents per 100 pounds; less than car lots, f.o.b. at shipping point. French Window Glass, 75 and 10 and 5 per cent. discount. American Plate ranges in price from 50 and 10 and 7½ per cent. discount to 60 and 5 per cent. discount. Imported Plate Glass, 60 per cent. discount to 60 and 10 and 5 per cent. discount.

Commercial Travelers' Day.

LAST SATURDAY, June 10, the Travelers' Protective Association of America, a national organization of commercial travelers, having divisions in 41 cities in the United States, took possession of Festival Hall at the World's Fair, at 11 o'clock. The national president, George S. McGrew, had requested the various State divisions to select some one to represent their State on this day. The programme was as follows:

"Address of Welcome," Gov. Altgeld of Illinois.
"The United States," Vice-President Adlai E. Stevenson.
"Missouri," William J. Stone, Governor of Missouri.
"A Message from the South," Judge Edgar E. Bryant of Arkansas.
"Tennessee," James M. Greer of Tennessee.
"Texas, the Lone Star State," ex-Gov. Richard B. Hubbard.

This association held its national convention at Peoria, June 6 to 9. Members arrived in Chicago on a special train the evening of June 9. Saturday morning, June 10, the members of the Missouri division gave a reception at national headquarters, Missouri Building. All commercial travelers were invited, whether they were members of the association or not.

A. J. TUTTLE has recently opened a handsome store at 178 Portland street, Boston, Mass., where he will carry a complete assortment of general and builder's Hardware.

Massachusetts Hardware Dealers' Association.

A MEETING of the Massachusetts Hardware Dealers' Association is being held to-day at the American House, Boston. The principal subject presented for discussion at the meeting is: "How can we derive the greatest benefit from the Hardware Dealers' Association?"

Export Notes.

NORMAN B. TAYLOR of the United States Consulate at Hong Kong says that during the last few years Hong Kong, Canton and other Chinese cities have been flooded with circulars of all descriptions representing all branches of American manufacture, and claiming untold virtues for certain machines, implements, agricultural and otherwise, and, in fact, all sorts of American enterprises. The Chinese dealers invariably after reading these productions pronounce the authors liars and rogues, for the reason that, according to their logic, if any man had such machines to sell he would bring the machine along and show how it worked instead of sending a printed picture of it on a piece of paper. For this reason, Mr. Taylor says, it is absolutely necessary in order to be successful in getting Chinese trade to represent the goods to be sold personally, claim nothing more for them than they are really, and rely on the shrewdness of the Chinaman himself to pick up a good thing when he gets an opportunity at a fair price.

The steamer "Arroyo," first of the new Union Line, for which Arkell & Douglas, 95 Broad street, are agents, will leave New York for South African ports, including Cape Town, Port Elizabeth, East London, Port Natal and Delagoa Bay June 15 or soon after. Her agents inform us this pioneer steel steamer will carry about 3500 tons of cargo on her first trip. It looks very much as though sail communication between the ports alluded to had seen its best days. With the direct steamer facilities afforded by two powerful lines now in operation, merchants can well afford to exert themselves in the direction of developing new business in that portion of Africa, so rich in natural resources. The next steamer of this line will sail from New York between July 25 and August 1.

Herbert A. Benham of Benham & Froud, Chandos street, London, arrived in this country two weeks ago on a visit to the Columbian Exposition. While in New York he picked up many desirable Hardware specialties with a view to importing them into England. This house is an old one, having been established in 1785. His address while in the United States will be in care of John G. Rollins, 15-25 Whitehall street, New York.

A. Gunther, senior partner of the export house of Theile & Quack, New York, sailed for Bremen on the steamer Lahn, June 13. Richard Koeller, the junior partner of this firm, now in charge of the main house in Elberfeld, Germany, is expected to arrive here late in July, and assume permanently the direction of the New York branch.

An enterprising and old-established export house who deal largely with many of the Spanish-American countries south of us, are taking a practical way to divert trade to America by writing their correspondents to send them samples of various leading articles of Hardware now made by European manufacturers. The reciprocity treaties now in operation, notably those with the Spanish West Indies and Brazil, afford excellent opportunities for securing most of this business. A request has recently been made for samples of English T-hinges and similar articles, with a view to manufacturing corresponding goods for that market.

Robley & Brundage, 142 Chambers street, who represent several manufacturers in New York, have recently shipped what they believe to be among the first if not actually the first consignments of Sash Balances and Champion Clothes Bars to Belize (British Honduras).

Sir Roderick W. Cameron of R. W. Cameron & Co., 23 South William street, New York, sailed for New York, from Liverpool, June 14, on the "Teutonic." He left New York, October 6, for Australia, via San Francisco, and has been looking over the field there since.

There is much complaint among New York houses with Australian connections, at the failure of the postal authorities to get the New York mail leaving here, April 21, 22, on the steamer "Mariposa," clearing from San Francisco April 27. Cables have been received in this city from Melbourne, Australia, stating there was no letter mail from New York, while the English mail, via New York April 23, was delivered to the steamer and arrived out on time.

Charles Cullen, representing W. J. Kingsland, 56 New street, New York, in Australasia and South Africa, arrived at Cape Town, South Africa, early in May from Australia. He has with him upward of 40 cases of samples of American Hardware, as produced by nearly 30 prominent manufacturers in this country, including Henry Disston & Sons, Russell & Erwin Mfg. Company, F. R. Plumb, Lalance & Grosjean Mfg. Company and others. His mission is to show the goods, quote prices and post buyers thoroughly, while they are free to order direct of the makers or through regular New York commission houses.

Prize Competitions

$25.00.

As announced in previous issues the following competitions are now before our readers and remain open until the dates named:

Prize Competition No. 25.

SUBJECT:

Show-Window Display.

The subject of attractive show-window display is one requiring careful attention as an inexpensive and sure method of attracting and securing trade. This competition is designed to draw out suggestions as to the best methods of displaying goods, which may, if desirable, be illustrated by sketches and photographs. Prominent among the points which may be touched upon are the following:

1. The object of window display;
2. How this object may best be accomplished;
3. Kinds of goods especially suitable for window display;
4. The frequency with which displays should be changed;
5. Treatment of season goods;
6. To what extent goods in operation may be shown;
7. Suggestions for special and unique designs;
8. Arrangement of stands, shelving, &c., in windows;
9. Errors to be avoided in window display.

This competition will remain open until June 24, 1893.

Prize Competition No. 26.

SUBJECT:

To What Extent Are Manufacturers and Jobbers Justified in Selling to Consumers.

This competition is suggested by the fact that frequent complaints are made that manufacturers and jobbers interfere with the retailer's business by selling to his customers. It is intended to draw out the views of the trade on the subject. In discussing the question the following points may, perhaps, naturally be touched upon:

The annoyance and injury to which the retailer is thus subjected;

What the rights and privileges of the manufacturers and jobbers are in this matter;

What it is feasible for retailers to do for their own protection.

This competition will remain open until July 1, 1893.

Prize Competition No. 27.

SUBJECT:

Local Associations of Merchants.

It has been found feasible to form associations in many places for the purpose of securing more friendly relations among competitors and reaching an understanding in regard to matters of common interest. Among the good results referred to as coming from such associations are the following: Overcoming petty jealousies; cultivating a spirit of fraternity; listing of undesirable customers; an understanding in regard to time of presenting bills; putting in operation early-closing movements; agreement as to the prices at which goods are to be sold; mutual accommodation in supplying goods which one merchant may be temporarily short of, &c. The subject is thus evidently a broad one and of a good deal of practical interest. In discussing it the following points are suggested:

Whether it is desirable to have such associations;

How such associations may be organized;

The objects to be accomplished by them.

It will also be of interest to have any information in regard to the practical working of such associations.

This competition will remain open until July 8, 1893.

The following prizes will be awarded in each competition:

First prize	$12.50
Second prize	7.50
Third prize	5.00

The prizes will be awarded for answers which, in the judgment of the Committee of Award, are most suitable for publication and of the most general interest

We reserve the privilege of extending the time on any competition in case the contributions received are not of sufficient number or merit for the committee to award prizes. These competitions are open to every one, and it is hoped that there will be a general response from business men. We shall have the privilege of publishing any or all of the contributions received.

Replies are to be received not later than the dates on which the competitions close. They should be addressed as follows:

DAVID WILLIAMS,
96-102 *Reade street,*
New York.
Prize Competition No. —.

The committee to whom the contributions in Prize Competition No. 14 were referred have awarded the prizes as follows:

First Prize to WM. TODD, JR., Norristown, Pa.

Second Prize to E. T. BRADLEY, Swanton, Vt.

Third Prize to W. O. JACOBS, Danielsonville, Conn.

World's Fair Exhibits.

THE EXHIBIT of the Universal Sad Iron Company, Milwaukee, Wis., is located in the Manufactures Building on ground floor, Block 2, Section O, Column 81-83, northeast part of the building.

STOVER MFG. COMPANY, Freeport, Ill., are exhibiting their full line of Wind Mills, Grinding Mills, Builders' Hardware, Hardware Specialties and Book Holders. They have erected a building in the Wind Mill section south of Agricultural Building Annex, 20 x 20, with an annex in the rear, in which they have erected a large tower and placed thereon a Steel Power Wind Mill that will operate machinery of their own manufacture. Outside the building they have six stands of Wind Mills, two mounted on 60-foot steel towers, one on a 50 foot steel tower, one on a 40-foot steel tower, one on a 22-foot steel tower of special design for foreign trade, and another on 24-foot wood tower, all connected with pumps for operation. Inside they show their line of Grinding Mills, Corn Shellers and heads of Wind Mills mounted on low stands convenient for inspection; also their line of New Idea Screen Door Hinges, New Idea Double Acting Spring Hinges, Ideal Sash Pulleys, Held Dictionary Holder and various other articles of Hardware. In addition to the above they have space in the annex of Agricultural Building, in which they show several styles of Grinding Mills.

HOBART B. IVES & CO., New Haven, Conn., make an exhibit of goods of their manufacture in Section P, block 4, No. 37 Manufactures Building. They have a corner space fronting on two aisles, handsomely carpeted and surrounded by a brass railing, in which are shown their Builders' Hardware specialties, which include 48 styles of Ives' Patent Sash Locks mounted in an antique oak and mahogany cabinet.

ILLINOIS BOLT & NUT COMPANY, Carpentersville, Ill., are exhibiting in Section F. Block 2, northeast quarter gallery floor, Manufactures Building. This display consists only of Copying Presses and Stands, their other lines being unrepresented because the company would be required to make separate exhibits in several of the different buildings.

Trade Items.

THE NEW STORE erected for and occupied by Helbrung & Grimm, St. Louis, Mo., is handsomely and conveniently fitted up for Stoves and House Furnishing goods. On the left of the entrance is a display wall case of oak, with glass doors, for Granite Ware, Clocks, Silver Ware, Carving Sets, Cutlery, &c. A hanging gallery occupies the rest of this side, while on the opposite side are shelves, reached from the floor, both being used for Tinware and household goods. Against the wall under the gallery are a line of Wrought Ranges, then a row of Cook Stoves, and next two rows of Heating Stoves. The Stoves are on stationary platforms, with aisles between, so the Stoves can be easily inspected. Bird Cages are hung under the gallery.

JOSEPH A. SCOTT has succeeded Charles Johnson in the Hardware, Paints and Oils business at Trenton, N. J.

ON MAY 1 the Hardware houses of Aid & Coleman and Gorham & Funkhouser, West Plains, Mo., were consolidated, under the style of the Gorham-Aid Hardware Company, who have been incorporated with a capital stock of $10,000. The officers of the new company are as follows: C. T. Aid, president; J. E. Gorham, vice-president; C. F. Funkhouser, secretary, and C. F. Coleman, treasurer.

STRANSKY & CO., 27 Murray and 31 Warren streets, New York, have now in stock and afloat a full assortment of their Cameo Mottled Enameled Ware, in American shapes, embracing, we are told, upward of 800 styles, sizes and finishes. This ware is enameled on steel with three coats of enamel, and has long been sold by them on importation orders only. They will now be in a position to execute promptly from stock such orders as they may be favored with. They desire to say that this ware in no way infringes enameled goods made here, but if necessary they are prepared to give a written guarantee holding everybody harmless handling it. It is made in three finishes, vermilion-blue, gray and brown, and is very tasteful in appearance.

CINCINNATI MFG. COMPANY, Cincinnati, Ohio, issue a circular in which they state that they do not belong to any combination and call attention to the excellence of their Leader Fly Traps, Corn Poppers and other Wire goods.

A. B. KLUGE & Co. have bought out the Hardware, Sporting Goods and Agricultural Implement business formerly conducted by W. H. Clark, Tracy, Minn. The new firm advise us that they would be pleased to receive catalogues, lists, &c.

NEGOTIATIONS have for some time been in progress for the purchase by the Russia Cement Company, Gloucester, Mass., of the business of the Improved Process Glue Company, Gloucester, Mass., but we are advised that some legal difficulties have been encountered and the matter has not been consummated.

THE KING POWDER COMPANY, Cincinnati, Ohio, are sending out a handsome lithograph, 21 x 28 inches in size, printed in several colors. The picture is an enlarged reproduction of their trade-mark, showing a duck which has just been shot, tumbling into the water. The Powder to which the lithograph is designed to call the attention of the trade is King's Quick Shot, the good qualities of which are alluded to.

THE PECK, STOW & WILCOX COMPANY are mounting some of their leading patterns of Drawing Knives with handsome rosewood handles, with nickeled caps and ferrules. These goods are so made when specially ordered, and appear to be meeting with favor at the hands of those who deal in the finer grades of mechanics' tools.

E. WECK, 165 Fulton street, has recently opened a store at that address for the sale of Cutlery and Revolvers at retail. Mr. Weck has had some years of experience, maintaining stands in some of the large department stores so often found in large cities, and is still connected with these interests in addition to the venture just started.

PULLMAN SASH BALANCE COMPANY, Rochester, N. Y., advise us that their trade on their Steel Sash Balance shows a large increase over last year's business. They refer to trade on the Pacific Coast as being especially gratifying. A good stock of the Balances and Door Springs of the company is carried at their New York office, Robley & Brundage, 142 Chambers street.

D. A. GOODRICH, New York representative for the Lufkin Rule Company, Saginaw, Mich., is now fully located in their new office at 20 Murray street, where the company are carrying a full line of their goods. It is the intention of the company to keep their New York office well stocked for the convenience of their Eastern customers, whose orders, if sent direct to that office, will receive prompt attention. They refer to their trade, especially in the line of Steel Tapes, as largely increasing.

ONE of the oldest manufacturers of Churns in the West is J. McDermaid, Rockford, Ill. His Star Churn is especially referred to as one of the latest improvements in that line. Besides its durability, special attention is drawn to the fact that the bails and cover fastening form a compound leverage, thus greatly increasing the pressure.

E. M. SARGENT, Southern representative for Supplee Hardware Company, Philadelphia, Pa., issues his route list for June and July, in folder form. On the front cover is a picture of an eye, under which are the words, "Drop you a," and below these a fish line. On the inside of the folder are addresses at which telegrams, letters or express will reach him on succeeding dates. The dates and addresses occupy the left half of the pages, while on the right-hand half of the pages, under the heading "Memorandum," are enumerated summer goods, under each of which are trite sayings, as, for instance:

Pocket Cutlery
June's the month
for Harvest trade.

Table Cutlery.
Makes Steak
Tender and Tasty.

Socket Shovels.
Money makers,
and please all.

Meat Cutters.
Say, it's early!
Keep your eye on 'em.

The last page is devoted to reasons why goods can be bought to advantage from the Quakers. The folder is unique, and well calculated to make and hold trade.

H. P. NAIL COMPANY, Cleveland, Ohio, announce that they have engaged the Edwin S. Jackman Company, 901 Rookery Building, Chicago, to act as their agents in Western territory. George A. Mason, their former representative, is the secretary of the Edwin S. Jackman Company, and will thus be able to come in contact with Nail buyers, as heretofore.

POLLARD, BLACK & CO., wholesale Hardware merchants, Nashville, Tenn., will discontinue business July 1 next. Mr. Black will become interested with Dudley Bros. and the firm style will be Dudley Bros. & Black.

SANSON CUTLERY COMPANY, Wilkesbarre, Pa., have added to their manufactures a new line of Bread Knives, to the material and finish of which they call attention. They have also added a few patterns of Round End Table Knives and Forks. While not as busy as they have been, they are in receipt of sufficient orders to enable them to run their factory full handed and on full time.

Manufacturing.

L. S. STARRETT, Athol, Mass., is adding a three-story and basement building, 160 x 40 feet, to his present plant. In excavating for the foundation of this building the workmen encountered a solid ledge of rock covering nearly the whole ground. This they were obliged to blast and remove to an average depth of about 4 feet. The new building will be equipped with a new 100 horse-power wheel under a 16½-foot fall. The building will be completed in the early fall.

SPRING CURRY COMB COMPANY, South Bend., Ind., advise us that their business during the past winter was very heavy, and that trade has continued active up to date. They are now putting in new machinery and new shafting which will nearly double their capacity, and they will thus begin next season's business in better shape to meet the demands of their growing trade.

NORTON EMERY WHEEL COMPANY, Worcester, Mass., are extending their works by an addition about 50 x 40 feet on the north and one on the west, 37 x 44 feet, both two stories and basement. They are also erecting new kilns and hope to thus increase their facilities for production something over 50 per cent.

SAMSON CORDAGE WORKS, Boston, Mass., are making a considerable addition to the machinery in their factory, more especially in the card room. They have also recently placed in running order an electric power plant which is giving good satisfaction. With their new facilities the company hope to be able to fill orders promptly for the present at least.

THE J. T. HENRY MFG. COMPANY, Hamden, Conn., have recently completed a new building 40 x 24 feet, two stories high and built of brick, adjoining the old shop. New machinery also has been added and the plant equipped for special press work and the manufacture of Sheet Metal goods to order. This concern are pushing the sale of Henry's New Grape Shear, which is especially designed for picking grapes, but is also recommended for cutting flowers. The blades and jaws are made of best cast steel, carefully tempered, and the design is the result of a number of years experience in manufacturing articles of this character.

SEVERAL NEW LATHES have recently been added to the Stover Novelty Works, Freeport, Ill., manufacturers of Power Hack Saws, on which they report greatly increased sales.

THE STOVER MFG. COMPANY of Freeport, Ill., have recently added to their already large works a galvanizing plant for galvanizing steel Wind Mills and a general line of job work. This has necessitated a considerable enlargement of their force.

THE ILLINOIS GLASS COMPANY, Rockford, Ill., among the largest manufacturers of Glassware in the country, are now manufacturing the Manny Lemon Juice Extractor. Their No. 2, or saucer extractor, is a very convenient article. It is made of heavy glass, and the saucer prevents the loss of any juice, at the same time doing away with the discomfort of soiling the hands when using it.

HARTFORD MACHINE SCREW COMPANY, Hartford, Conn., advise us that they are now running about 900 Automatic Screw Machines and Finishers, producing not only standard work such as is shown and described in their catalogue, but a large number of Watch and Clock Screws, Electrical work of all kinds, together with Gun, Pistol and Bicycle work. In short, all kinds of Screws suited to machine purposes and a very large variety of fancy turned work. They advise us that they are fitting up many large houses in this country with their improved Automatic Screw Machines and Tools for the same. The capacity of their works, both at Hartford and in Ohio, has been considerably increased during the past 12 months.

THE WIRE GLASS COMPANY, Tacony, Pa., attract a good deal of attention with their exhibit in the Manufactures Building, which shows Plate Glass of various colors and thicknesses, in the midst of which is Wire of different size of mesh and many designs. The glass may be quite seriously fractured without letting water through or pieces dropping, to the injury of all under it. Another not less important quality is the extent to which it impedes the operations of house breakers.

MILBURN WAGON COMPANY, Toledo, Ohio, have enjoyed a good trade this year in Business Wagons, having gotten out several new designs, among which is a Wagon suitable for painters and contractors. They state that the trade in general are becoming more interested in the line of Delivery Wagons, which they refer to as a splendid advertisement. The company have just added two of West's Cold Tire Setters, placing one also in their new Chicago branch. They have also received a new Hub Borer which will enable them, they claim, to furnish a perfect running wheel with uniform dish on all of their work.

Fishing Rod Rack.

REICHLEY & ALLISON, York, Pa., have made for themselves a rack, as shown in the accompanying illustration, Fig. 777, which they find very convenient, and which was constructed at a small outlay. The platform is 2 x 4 feet in size, 6 inches high, and is provided with six plate casters, so it may be wheeled to any

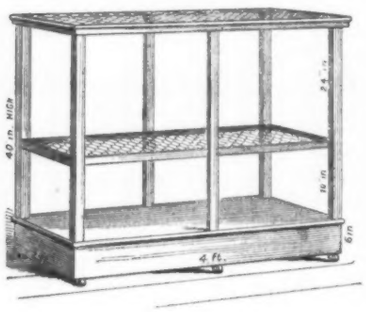

Fig. 777.—Fishing Rod Rack.

part of the store or out of doors. There are six upright posts to which the frames are fastened, and on the frames are stretched pieces of 2-inch mesh poultry netting. The lower frame is 10 inches above the platform, and the upper frame 24 inches above the lower one, making the entire hight of the rack 40 inches. The number of Rods which the rack holds in comparison to its size is referred to as one of its advantages. The rack is also well adapted to holding Shovels, Hoes, Rakes, Forks, and a general variety of straight-handled goods.

Attractive Cutlery Case.

RYAN & MERRILL, Miles City, Mont., have their Cutlery arranged in a case, as shown in the accompanying cut, Fig. 778. The steps or shelves are circular in front, straight on the back, and are covered with material to show the goods to the best advantage. The shelving is left

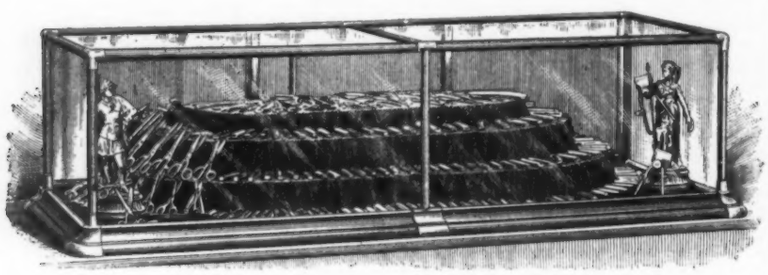

Fig. 778.—An Attractive Cutlery Case.

open at the back and provides a place for keeping stock. The center opening, which is the largest, is 19½ inches wide, 15 inches deep and 9 inches high, in which is kept the surplus stock of Pocket Knives. The original boxes are used, fixed with a staple and brass curtain ring to admit of drawing them out, the numbers being arranged in rotation. The space holds about 75 different styles of Knives. These are arranged in two rows, the rear row in five tiers deep and the outer row in seven tiers deep. The rear row is solid, while the outer row has spaces, so they may be slid one way or the other in order to get at those in the rear without disarranging the boxes in the front row. The spaces at each end of the shelving are 12 x 6 x 9 inches. At one end is kept the surplus stock of Shears, and at the other the surplus stock of Razors. The spaces will hold about six sizes of Shears and two dozen styles of Razors. The Shears are held in place on the steps by brass furniture tacks driven at the outer edge of the shelf. The statues fill in the corners of the case and add to the attractiveness of the display.

A Simple Glass Rack.

A SIMPLE and inexpensive Glass rack for holding large double or single strength Glass can be made as shown in Fig. 779 of accompanying cuts. It is made of old Glass boxes, from which the boards on one side are taken off, and are nailed together in

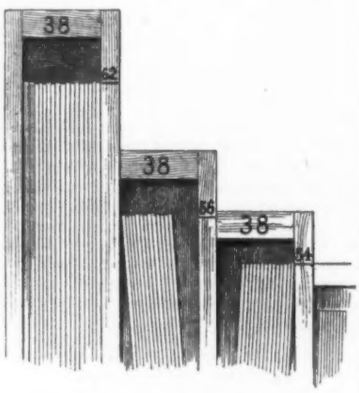

Fig. 779.—A Simple Glass Rack.

groups of from three to six boxes. The top and one edge of each box is painted white, the width of the Glass stenciled on the top, and the length on the side in black. A short mark is also made to show where the top of the Glass should come. C. D. Clapp, Toledo, Ohio, to whom we are indebted for the foregoing, states that with rack in use the boxes are permanent, that they do not slant or tip and that they take up but a small amount of room. He also remarks that it is the cheapest and most convenient rack he has ever used.

Novel Arrangement for Showcase.

IN THE ESTABLISHMENT of Buehler, Bonbright & Co., 427 Market street, Philadelphia, Pa., showcases as shown in the accompanying illustrations, Figs. 780 and 781, are used. The feature of the arrangement is the weight which counterbalances the lid of the case, holding it open

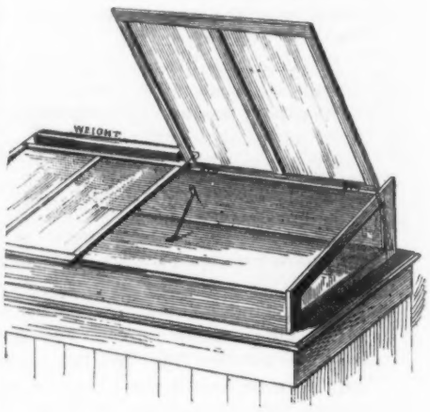

Fig. 780.—Novel Arrangement for Showcase.

when raised. The weight may be put on the top of the lid, as shown in the cuts, or hung underneath, as desired. It is desirable to have the weight distributed equally over the width of the sash to insure a distribution of the strain; the balance or weight may be neatly concealed in a box. Iron or lead is used for balances, and a base knob for a buffer. If the back of the case is designed to go close against the wall, the back can be sloped as in Fig. 781, to

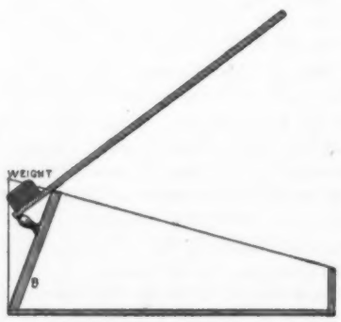

Fig. 781.—Weight and Buffer.

allow space for the balance, without sacrificing room on the bottom of the case. The weights vary with the size of the lid of the case, those in use being from 32 to 65 pounds, as the glass in the lids is heavy plate. This idea originated with Mr. Bonbright and a few of the cases were put in use. The arrangement proved so satisfactory that the system is being extended all over the store. The cases are arranged on the ledges under the shelving, also on counters, and are used for samples only. The store is 260 feet deep, facing on two streets, four stories high.

The Mexican Stamp Act.

(From a Special Correspondent.)

AS ILLUSTRATING one of the difficulties under which business men in Mexico labor, some extracts from the new Stamp law of that country may be interesting to readers of *The Iron Age*.

This new law, which was promulgated under date of April 25 last, is a revision and amplification of all previous laws on the same subject and goes into effect on July 1 next.

It defines the kinds and amount of stamps to be used, the manner of applying them, and also the penalties for their improper use or omission.

As a general fact it may be stated that, with the exception of certain official papers, all documents and business papers must be more or less extensively stamped to give them legal value.

This includes drafts, checks, notes, wills, bills, receipts, &c. The law goes further than this: Not only must all documents ordinarily used in the transaction of business be stamped, but certain documents, not otherwise necessary, are by law required to be made, apparently and actually for no other reason than to provide a place for the affixing of stamps.

Thus, according to Article 28 of the new law:

For all sales of merchandise, be they for cash, on time, for current account, or in exchange for other merchandise, for an amount of $20 or over, the seller is required to make, and the buyer to demand, an invoice specifying the transaction and legalized by affixing stamps to an amount corresponding to the sum of the invoice, as per Paragraph 23 of the tariff.

Paragraph 23, here referred to, reads:

When the amount of a sale is $20 or more (the stamps required are) for every $5 or fraction thereof, 3 cents.

When sales are made, payable in a specified time, the seller is required to secure from the buyer his note for the amount due, which note must be stamped at the rate of 2 cents for every $20 or fraction thereof. This does not, however, affect the necessity of making and stamping the original invoice independently of the note.

In a similar manner, all employees (otherwise than Government), are required to give to their employers a receipt for their monthly wages, except in cases where the monthly earnings are less than $50. These receipts must be stamped at the rate of 3 cents for every $5 of their amount. Employers and employees are alike held responsible and subject to the penalties provided by law for any neglect in making and stamping these receipts.

The autograph of all telegrams sent by private parties must have a 1-cent stamp, for the affixing of which the operator transmitting the message is held responsible together with the sender.

The autograph of any public notice sent to a printing office for publication (in a newspaper, as handbills, or in any other form) must have a 50-cent stamp attached to it.

Notices or advertisements, when posted in stores, warehouses, restaurants, or like public places, require a 2-cent stamp for each separate sheet, besides the stamp required for the autograph.

The foregoing are only a very few of the applications of stamps, but will probably suffice to make most of our readers' hair stand on end when they consider them in connection with their own businesses.

No doubt, however, stamps suit the Government as a convenient and sure way of collecting a revenue.

It Is Reported--

That Donald Bain has sold his interest in the Hardware firm of Bain & Kirkpatrick, Atlanta, Ga., and has retired from the firm. Mr. Kirkpatrick will remain at the head of the house, which will continue business under the style of the Kirkpatrick Hardware Company. Mr. Bain has not determined what business he will enter, and for the present will enjoy a respite from business cares.

That Lewis S. Van Arnum will continue his father's Hardware business at Stillwater, N. Y.

That Nathaniel Rutter and Wm. W. Rideout are about to open a new Hardware store at Waltham, Mass.

That a certificate of incorporation has been issued to the Best Brothers Hardware Company, Palmyra, Mo., with a capital of $10,000.

That L. A. Williams & Co.'s Hardware store at Pelican Rapids, Minn., was entered by burglars on the 28th ult. and several cases of Cutlery and a half dozen Revolvers carried away.

That the Saginaw Hardware Company, Saginaw, Mich., are now occupying their new quarters, which are conveniently arranged and well fitted up, and an improvement on the former premises.

That Elmer E. Dyer of the Hardware firm of Macdonald, Davis & Company, Norristown, Pa., was married on the 1st inst. to Miss Martha Foster Wyatt, daughter of Thomas G. Wyatt of Roxborough.

That James C. Moore, St. Johnsbury, Vt., is closing out his stock of Hardware.

That the Speer Hardware Company of Fort Smith, Ark., have been incorporated with a capital stock of $60,000. The officers are D. Speer, president; C. E. Speer, vice-president and manager, and R. E. Vick, secretary and treasurer.

That William Thompson's Hardware store at Irwin, Pa., was robbed of $100 worth of goods on the 2d inst.

That R. Bierman's Hardware store, Cherry Valley, N. Y., was burglarized on the 31st ult.

That Leopold Greatz's Hardware store at Brillion, Wis., was destroyed by fire on the 2d inst. Loss, $4000; partly insured.

That Dinsmore & Potter's Hardware store at Fairfield, Neb., was robbed on the 30th ult.

That M. B. Stockdale of the Hardware firm of Brown & Stockdale, Heyworth, Ill., has disposed of his interest in the business to Joseph Rankin.

That Charles H. Hyde, George H. Hyde and William Youngs have purchased the Hardware business of Sargent & Andrews, Watertown, N. Y. The new firm will conduct business under the style of Hyde, Youngs & Hyde.

That the Hardware store of G. W. Vandeveer at Springfield Centre, N. Y., was burglarized June 5, some Knives, &c., being taken.

That the Hardware store of K. E. Whitmore at Addison, N. Y., was damaged by fire May 31; store and stock fully insured.

Price-Lists, Circulars, &c.

C. F. RICE, 204 to 208 South Green street, Chicago: This is a catalogue of 544 large pages, comprising a great variety of goods for sale by this house, coming under the general designation of House-Furnishing Goods. The claim is made that this is the largest house of its kind on the face of the globe. Three carloads of paper were required for the edition of the catalogue just printed.

JAMES B. CLOW & SON, Chicago, Ill.: Japanese Lawn Sprinkler. A circular illustrating the Sprinkler refers to it as being indestructible, having no revolving parts and as movable about the lawn without turning off the water. The Sprinkler is made in two sizes—for ¾ and 1 inch hose.

R. E. DIETZ COMPANY, New York: Dietz Tubular Lanterns, Street Lamps, Driving Lamps, Oil Stoves, Commercial, Railroad and other Lanterns. Their World's Fair Edition Catalogue is a reproduction of their general catalogue, reduced in size, but contains all that their full catalogue does. As this business was established in 1840, this is their fifty third year.

WHITMAN & BARNES MFG. COMPANY, 102 Chambers street, New York: Mower and Binder Knives, Sections and Guards, Thresher Teeth, Spring Keys and Cotters, Twist Drills, Oil Engines, and a general line of Agricultural Implements, Hardware Specialties, Railroad and Machinists' Supplies. These goods are represented by a general catalogue, also in smaller catalogues devoted to the different lines.

JESSE LEE & SON, Philadelphia, Pa.: Horse Boots. A catalogue devoted to the Keystone Standard Horse Boots illustrates them in a large variety of forms, for various uses. They are referred to as being made to look well, fit well, and to wear well by the use of best materials, first-class workmanship and approved designs.

WILLIAM MCNIECE & SON, Philadelphia: Revised price list. The list is in catalogue form, well illustrated, and contains 16 pages. It covers a line of Hand, Panel and Rip Saws, Circular Saw Repairs, Cabinet Saws, Hand-Saw Blades, Compass Saws, Butchers' Saws, Saw Knives, Kitchen Saws, Key Hole Saws, Cheese Knives, Paper Hangers, Scrapers, Edging or Border Knives, Scuffle Hoes, Machine Straw Knives and Ice Creepers.

THE I. L. ELLWOOD MFG. COMPANY, DeKalb, Ill.: Glidden Pocket Record. The above company send, with their compliments, a blank vest pocket memorandum book of 48 pages. At the head of each page is reference to Glidden Wire.

LEFEVER ARMS COMPANY, Syracuse, N. Y.: Lefever Automatic Breech-Loading Hammerless Guns. In a catalogue devoted to these goods special attention is called to their Automatic Ejector Gun, and also to the compensating features embraced in their Hammerless Guns. It is stated that with the aid of a screw driver the wear of years can be taken up, no matter what part of the action is affected.

MORRISS IMPLEMENT COMPANY, Glade Spring, Va.: Implements and Machinery. Illustrations are shown of Steel Frame Binders, Reapers, Mowers, Traction Engine, Separators, Horse Rakes Lawn Mowers, Pumps, Threshers, Drills, Feed Cutters, Hay Balers, Wood-Working Machinery, &c.

WM. FRANKFURTH HARDWARE COMPANY, Milwaukee, Wis.: Summer circular of new and seasonable goods. The book contains 56 pages, and illustrates Refrigerators, Screen Doors, Window Screens, Spring Hinges, Water Coolers, Freezers. Lawn Mowers, Lamp Stoves, Locks, Knobs, Escutcheons, &c.

MATTHAI, INGRAM & CO., Baltimore, Md., and New York: Summer Goods and New Goods. A catalogue devoted to these goods show Fly Fans, Water Coolers, Filters and Coolers, Foot Tubs, Child's Bathtubs, Combination Bathtubs, Tea Kettles, Fruit Cans, Oil Cans, Roaster and Baker, Drip Pans, &c.

STOVER MFG. COMPANY, Freeport, Ill.: Builders' and Standard Hardware, also Specialties in Hardware. Illustrations are given of Ideal Sash Locks, Drawer Pulls, Screw Pulleys, Stove Pipe Register and Ventilator, Stove Door Handles, Sash Pulleys, Screen Door Hinges, Double-Acting Spring Hinge, Shelf Brackets, Foot Scrapers, Dictionary Holders, Corn Sheller, &c.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

The market for the general line of Paints and Colors remains almost stationary, as far as features are concerned. Base materials move into the channels at a fairly liberal pace and keep remarkably steady in price, while the movement of leading pigments and various specialties is quite as brisk as usual at this season of the year. There is nothing in the general surroundings calculated to stimulate either buyers or sellers, or to cause any apprehension of radical changes in the immediate future.

White Lead.—The demand for corroders' product has been quite brisk, and the market remains in good shape, prices being well maintained here and at nearly all other points. Manufacturers of "quick process" and Mixed Leads also note a brisk trade in their specialties, and, while competition is rather sharp, prices vary in a slight degree only from the range that has prevailed during the past month or six weeks.

Zincs.—There has been a very fair run of small orders for American Oxide, but deliveries on old contracts meet the needs of large consumers to a great extent, and current purchases make a rather slim showing. Foreign brands are selling in moderate quantities only, and rather slowly at that. Prices throughout remain stationary.

Red Lead.—Very little of interest has transpired in this article since our last report, except there are more inquiries from the rubber makers for supplies extending over the autumn months. An offer of 6¢ was declined for 100 tons. Values remain steady for domestic and foreign makes.

Litharge.—There have been several contracts placed for the glass-makers' quality for future delivery at 5¼¢, less the usual discounts In the other grades there has been the usual jobbing movement at unchanged prices.

Orange Mineral.—An improved demand for French is noted, and stocks on the spot are very light. Prices are stiffer and are now held at 10½¢ @ 11¢. German is quiet, though a fair jobbing trade is reported at 7½¢ @ 8¢, as to make. Domestic grades are in ample stock to meet current demands, which have been rather moderate.

Colors, &c.—No positively new feature is observed in the market for either Dry or Oil Colors. There is some irregularity in prices, more particularly on low-grade goods, but the fluctuations generally are narrow. Business is fair in volume, but chiefly of hand-to-mouth type.

Miscellaneous.—There is no change in the position of Chalk, but Whiting is meeting with brisker sale for near future delivery at old prices. Barytes and Clays generally unchanged, selling rather slowly.

Oils and Turpentine.

Taken as a whole the market for animal and vegetable Oils has been a rather poor one. Depreciation in price of Lard and inferior greases has had a rather weakening effect on lubricants and soap makers' stock, and that, coupled with the natural tendency of buyers at this season of the year to purchase sparingly, gives affairs an unenviable appearance. The changes in prices, except for Lard Oil, have been moderate, however, since there is no great pressure of other goods for sale.

Linseed.—Round lots have been offered here by a Western manufacturer, for delivery during the next six weeks, at 48¢ net cash. Except in this instance, where necessity for prompt cash carries weight, the market is very steady. Business has been somewhat uneven but very fair all told and of larger volume than in the preceding week.

Cotton Seed Oil.—The market has been rather weak and slow, under the weight of some pressure to sell, and extremely indifferent interest manifested by exporters and large consumers. Prime Crude sold at 40¢, off grade Crude at 35¢ @ 37¢; prime Summer Yellow at 44¢ @ 45¢; choice grade Summer Yellow at 50¢, and Summer White at 51¢ @ 52¢.

Lard Oil.—The market for Lard Oil has been weak and inactive, and prices, responding to the restricting feeling of trade in general, have declined to 75¢ for prime city. Some makes sell a trifle under above price. There has been very little buying interest manifested, and although dealers are not well stocked, they see no reason why they should anticipate their wants in view of the condition of the market for raw material.

Fish Oils.—The Menhaden catch has been moderate and the production of Oil small thus far this season. Manufacturers, therefore, hold back from the market the stock they have on hand. Nothing new has transpired in the market for Sperm or Whale products. Cod Oils continue scarce and are very firm.

Spirits Turpentine.—Except for ordinary quantities there has been little or no demand, but supplies have arrived rather slowly, leaving no great accumulation here. Prices have not varied much from 28½¢ for regular and 29¢ for machine barrels.

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Malleable Iron Trucks.

The accompanping cuts represent malleable iron trucks being introduced by the North Western Malleable Iron

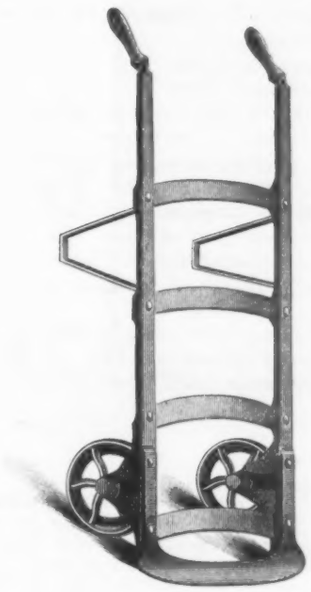


Fig. 1.—Malleable Iron Barrel Truck.

Company, Milwaukee, Wis. The trucks are described as being made almost wholly of malleable iron, the axle only being of turned steel and the legs of wrought iron. The manufacturers claim that the trucks are more substantial

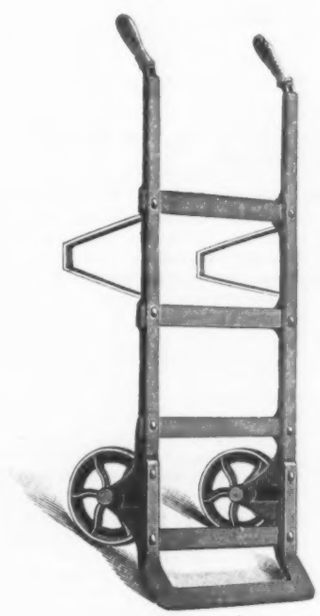


Fig. 2.—Malleable Iron Warehouse Truck.

than wooden ones, that they weigh no more than ordinary warehouse trucks and that they are more durable in every way. The barrel truck, Fig. 1, is designed for general use in foundries, mills, warehouses, &c., and the truck shown in Fig. 2 for bags and warehouse service.

Royal Sash Fastener.

Sargent & Co., New Haven, Conn., and New York, are putting the above sash fastener upon the market, as shown herewith in the full-sized cut. Working automatically with the lever is a cam attachment, so that when the window is locked a plate covers the joint between the upper and lower sash, so that the fastener cannot be opened from the outside with a knife blade or by other means. When the lever is pushed back to unlock the window the plate is carried back with it. The entire mechanism is actuated by a single flat steel spring. The fasteners are made of different sizes and in nine styles of finish.

Royal Sash Fastener.

Elliptic Bicycle and Bicycle Stand.

The Freeport Bicycle Mfg. Company, Freeport, Ill., are putting these articles on the market, as illustrated herewith. The Elliptic model D bicycle, Fig. 1, is described as having a long wheel base, frame of best cold-drawn weldless steel tubing with steel drop forgings, wheels 28 inches or 30 inches front and rear, Morgan & Wright pneumatic tires, adjustable dust-proof ball bearings all around, elliptical sprocket driving-wheel gear, Humber chain, composition, cork or rubber handles, and weighing from 30 to 40 pounds. The point is made that the saddle, post and head are on parallel lines and that in raising or lowering of the saddle and handle bar their relative positions are preserved.

Fig. 1.—Elliptic Model D Bicycle.

The bicycle stand, Fig. 2, consists of a rigid support to which a vertical oscillating yoke or loop is hinged, of such length and width as to admit to the space within it a considerable arc of the upper portion of the bicycle wheel, the wheel being moved longitudinally into the loop and the end of the loop with the grooved roller first reached by the wheel being lifted to admit the wheel, the pressure of the spring being utilized to draw the end downward as soon as the highest point of the wheel has passed under the roller and into the loop. The point is made that the bearing of the roller and loop is entirely on the tire, so as not to mar the enameling,

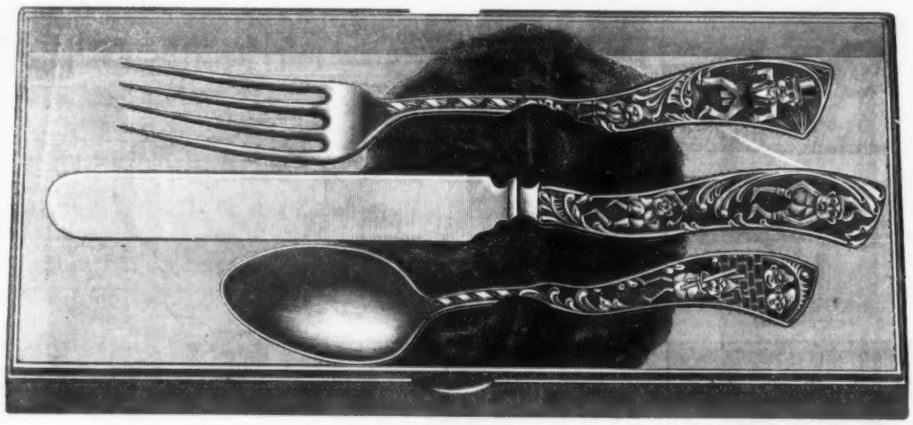
Fig. 2.—Devore's Bicycle Stand.

and that the standard is of sufficient hight for adjustment to any size of safety bicycle.

IVES & MILLER, Mount Carmel Axle Works, New Haven, Conn , advise us that business during the past year has been very good, especially on Collinge and half-Collinge Axles for fine carriages.

Brownie Child's Set.

The accompanying illustration represents a child's set put on the market by Kelley & Woolworth, Niagara Falls, N. Y. The manufacturers refer to the set as a new departure in design, outline and the manner of putting it up. The articles are put on an easel card to enable the dealers to make a nice display in the window or showcase, as it takes up but little room. The point is made that the design is made to suit the little people who use all the child's sets.



Brownie Child's Set.

The Blue Band Tip-Top Can.

The cut herewith shown is of an oil can being put on the market by the Youngstown Stamping Company, Youngstown, Ohio. The can is described as being made of heavy material, suspended on a strong frame, and so balanced as to be readily tilted for filling lamps or gasoline reservoirs. The outlet is controlled by a spring, which is designed to close the instant the thumb is removed, to render evaporation or leakage impossible. The can is made only in 5-gallon size, and combines, the manufacturers claim, all requirements in simplicity, durability and neatness.

The Blue Band Tip-Top Can.

Wilde's Twine Cutter.

A. L. Wilde, 252 Friendship street, Providence, R. I., is introducing the twine cutter, as illustrated herewith. It consists of a screw hook, with a slot on the inner side of the curve, in which a sharpened steel cutting blade is secured. The cutter is designed to be screwed into the counter or other woodwork, near the place where packages are tied, or string to be cut. Drawing the string across the blade severs it at any desired place. The advantages claimed for the cutter are the saving of string, neatness in the appearance of the packages and the fact that the device is always where it is placed.

Wilde's Twine Cutter.

Success Luminous Spoon.

The Enterprise Mfg. Company, Akron, Ohio, are combining three of their inventions in their latest Success luminous spoon. The three and distinct inventions thus combined are the luminous bait, reversible hinge lug and flexible weed protector. The three points are considered by the manufacturers as the most important features and desirable qualities of the trolling bait.

E. T. BARNUM, Detroit, Mich., has secured the Government contract for the cavalry stables at Fort Leavenworth, Kan., which are arranged for 144 horses, and will be fitted with the Hay Racks, Oat Mangers, Saddle and Bridle Brackets, Harness Hooks, Ventilators, Window Guards, &c., manufactured by Mr. Barnum.

Union Steel Hods.

The accompanying cuts illustrate steel hods put upon the market by Bittenbender & Co., Scranton, Pa. The hods are described as being made from 18 gauge cold-rolled steel, and having a drop-forged steel prong, with adjustable handle. The point is made that the pad and body are one, making but two parts, handle and body, with no loose parts to get lost. The manufacturers claim for these hods that they are water tight, that they will stand the test of steam elevators and that they dump clean, requiring no sanding. It is also remarked that the hods pack closely for shipping and storage, and that extra bodies, prongs and handles will be furnished on application. The mortar hods are made in three sizes—Nos. 1, 2 and 3, weighing 10, 11 and 12 pounds each, with a capacity of 6, 7 and 8 shovelfuls. The brick hods weigh 8 pounds, with a capacity of 16 bricks.

Mortar Union Steel Hod.

Brick Union Steel Hod.

Eureka New Cleaning Sets.

The Bridgeport Gun Implement Company, 313 and 315 Broadway, New York, and Bridgeport, Conn., are putting the above goods on the market as

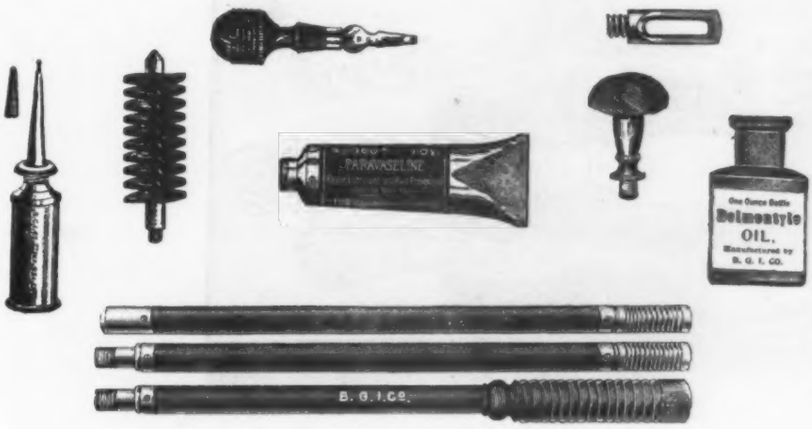


Fig. 1.—Cleaning Set No. 164.

illustrated herewith. The set No. 164, shown in Fig. 1, is described as containing the essential tools and lubricants for cleaning shot guns, and is packed in a neat box. The set is made up of a Medeira cleaning rod, bristle brush, flannel wiper, scratch brush, bottle of Belmontyle oil, screw driver with Medeira handle, oil can and a tube of paravaseline. These are made in 10, 12, 14, 16 and 20 gauge. The implements in set No. 964, Fig. 2, are referred to as being of the best grade,

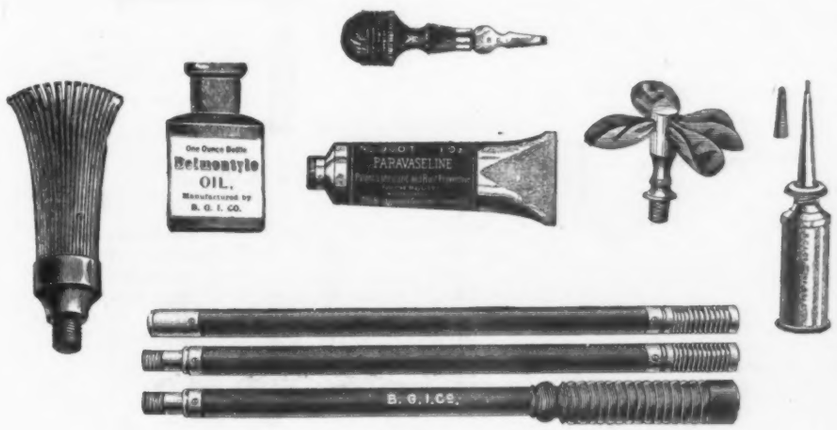


Fig. 2.—Cleaning Set No. 964.

packed in cloth-covered boxes, and as superior in utility to any cleaning set the company has ever turned out. It contains a cocobolo cleaning rod, Budd-Petmecky cleaner, flannel wiper, bottle of Belmontyle oil, tube of paravaseline, screw driver with cocobolo handle, oil can and kit of chamois and flannel. This is made in 10, 12, 14, 16 and 20 gauge.

OUR READERS will observe among the Special Notices in this issue one in which exclusive agencies for the sale of Howarth's Patent Sash Centers are offered to dealers in Builders' Hardware. These Sash Centers are put on the market by the Howarth Reversible Sash & Sash Center Company, Detroit, Mich., who refer to the success they have thus far met in introducing them.

Forg's Door Catch.

P. Forg, Somerville, Mass., is offering the catch shown in the accompanying cuts. The catch, Fig. 1, is a metallic shell containing a cone-shaped bolt held in place by a spiral spring. This device, with the bolt head projecting, is mortised into the door, and on closing the door the bolt head pressing against the striker plate, Fig. 2, recedes into the shell until the obstruction is passed, and then springs out again, into the recess provided for it in the striker plate. This, it is stated, securely fastens the door, which may be opened again by a slight pull. The point is made that the plate may be adjusted to shrinkage of the wood-work, without removing it, by turning the head. The catches are made with iron, brass and nickel plated striking plates, and of various sizes.

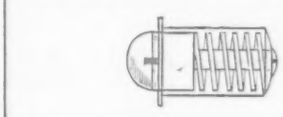


Fig. 1.—Forg's Door Catch.

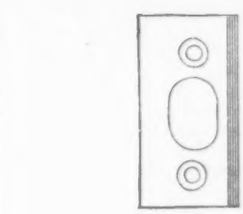


Fig. 2.—Striker Plate.

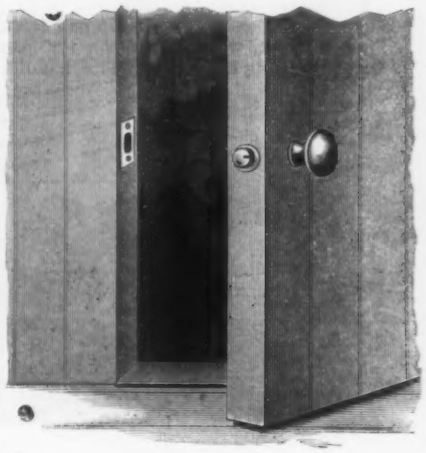
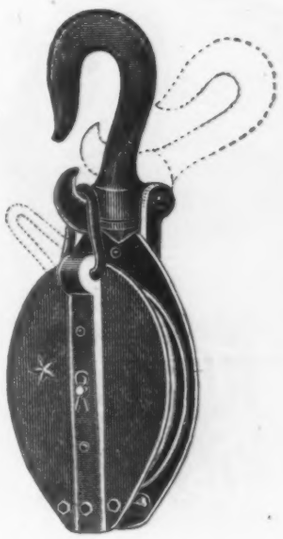


Fig. 3.—Application of Forg's Catch.

Wire Rope Snatch Block.

The snatch block herewith shown is put on the market by the Boston and Lockport Block Company, Lockport, N. Y., and Boston, Mass. The manufacturers remark that the shape of the block or shell allows them to use sheaves of large diameter, the same as are used in the corresponding regular wire rope blocks, and that the rope is therefore not subjected to sharp, short turns, thus obviating the breaking of the wires. The block is referred to as being reliable on account of its strength,

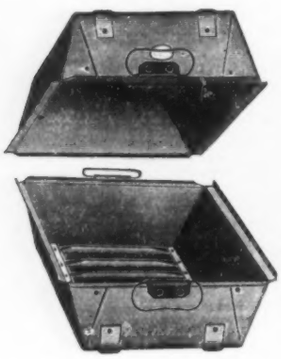


Wire Rope Snatch Block.

the simplicity of its construction, ease in working, and the simple and reliable locking device. Attention is called to these blocks fitted with metalline or phosphor bronze self-lubricating sheaves as being very durable, the self-lubricating properties which these bushings possess preventing, it is stated, all wear or friction on either bushing or pin. The point is made that the plates, being of steel, are lighter, stronger and stiffer than iron.

The Columbia Roaster and Baker.

The Star Baker Company, Bellville, Ohio, are offering this article as shown herewith. The lower pan has a rim on the sides upon which the top pan rests, when in use, which holds the top pan from slipping sideways. The handles



The Columbia Roaster and Baker.

on the bottom pan form a clasp at each end, holding the pans together. The manufacturers claim the pan is made of excellent material, well constructed, easily adjusted and that it does good work.

The Serpent Sprinkler and Fountain.

Cleveland Novelty Company, Cleveland, Ohio, for whom the Ross & Fuller Association, 33 Chambers street, New York, are agents, are offering the above article as shown in the accompanying cuts. The metal parts of the sprinkler are described as being made of polished brass, nickel plated; the tube of para rubber, wound with nickel plated brass spring wire, and the standard of polished steel, japanned. The manufacturers claim that the sprinkler is so constructed that there is no friction in any part, that there is no wear, and that with ordinary care it will last for years. It is remarked that the device is an entire departure from whirling sprinklers, that it combines a fountain with an attractive sprinkler, as shown in Figs. 1 and 2; that at least one-half more surface can be watered with a given water pressure than with revolving sprinklers, and that at will it can be made to sprinkle an oblong surface.

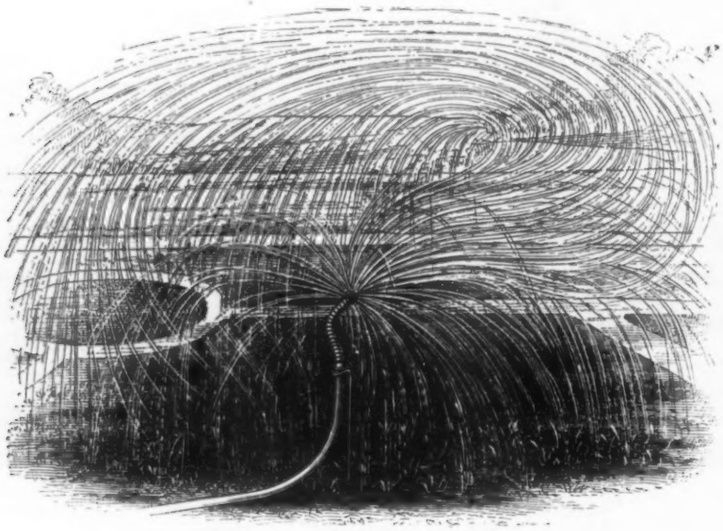


Fig. 1.—Serpent Sprinkler and Fountain.

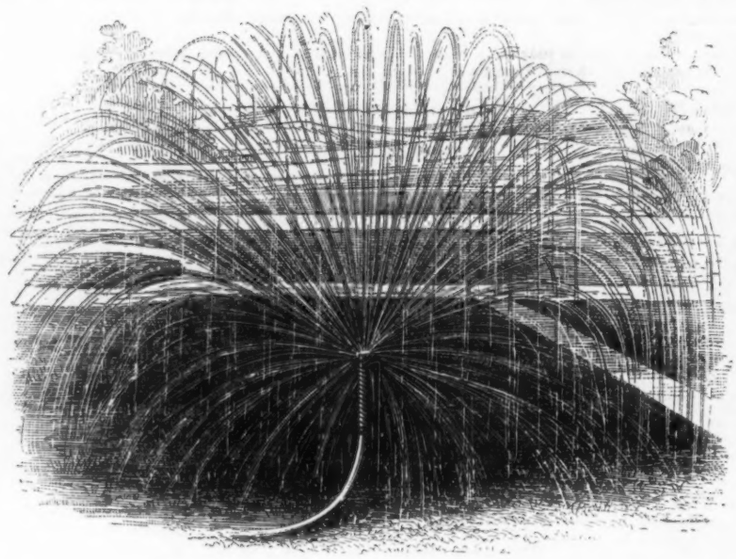


Fig. 2.—Used as an Ordinary Sprinkler.

A COMPARATIVELY NEW manufacturing concern of Freeport, Ill., is the Magney-Cate Mfg. Company, organized for the purpose of manufacturing double-acting Door Hinges, Screen Door Hinges and Door Knobs. The plant, which is new and of brick, is 100 x 40 feet, two stories in hight. It is well equipped with the most modern machinery and capable of accommodating a large force of men. Their double-acting Door Hinge has been pronounced by competent authorities one of the most practical and improved articles of its kind. It is a floor Hinge connected with the door by an arm fastened to the lower edge, while a rod from the jamb above acts as a pivot on which the door revolves. Its advantage lies in that it checks itself—*i. e.*, when opened from within and let free it does not swing out and it is strongest where most doors are weakest—viz., at the closing point. This is effected by use of cams, which, when desired, may be used in holding the door open. The company will soon begin the erection of a foundry for the manufacture of a high grade of Door Knobs, on which they control a valuable patent.

Toilet Table.

Ludlow-Saylor Wire Company, St. Louis, Mo., are manufacturing a toilet stand, as shown in the accompanying illustration. The holder is designed for sponges and is provided with towel racks on each side. The sponge holder

Toilet Table.

or receptacle is of brass, the mesh being sufficiently large to allow the air to circulate through it freely, thus thoroughly drying the sponge. The table is regularly made in nickel-plated brass, but will be made to order of any metal desired.

NEW HAVEN WIRE MFG. COMPANY, New Haven, Conn., have increased their facilities for the manufacture of special Wires for use in automatic machines, and are now prepared to make Wires of almost all shapes and of suitable quality for use in automatic Wire working machines.

Current Hardware Prices.

JUNE 14, 1893.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&10@50&10&5 % signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

Adjusters, Blind—

Domestic.....₩ doz $3.00, 33⅓%
Excelsior....₩ doz $10.00.....50&10&2%
North's.....list net @ 10%
Zimmerman's—See Fasteners Blind.

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—

Eagle Anvils, ₩ ℔ 9¢.....15@15&5%
Peter Wright's.....11@11½%
Armitage's Mouse Hole.....10½@11¢
Am. Wrought, Horse shoe brand.11@11½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—

Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise $9.00.....40&10%
Star.....45&5%

Apple Parers—See *Parers, Apple, &c.*

Augers and Bits—

Common Augers and Bits.....70%
Boring Machine Augers.....70%
Car Bits, 12-in. twist.....50%
Russell Jennings' Augers and Bits.25&10%
Jennings' Pattern Car Bits.....40%
Jennings' Pattern Auger Bits.....60%
Snell's Bits.....60&5%
C. E. Jennings & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32½ quarters, No. 5, $5; No. 30, $3.50.25%
Lewis' Patent Single twist.....45%
Pugh's Black.....20%
Pugh's Jennings Pattern.....30%
L'Hommedieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....15%
Cincinnati Bell-Hangers' Bits.....30&10

Bit Stock Drills—

Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—

Clark's small, $18; large, $26..35@35&10%
Ives' No. 4, ₩ doz. $40.....40%
Irwin's.....40%
Steer's, No. 1, $26; No. 2, $18.....35&40%
Stearns' No. 2, $48.....20%

Gimlet Bits—

Common.....₩ gross $2.75@3.25
Diamond.....₩ doz $1.25.....40&10%
Dos.....25@35&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co....30&10%
Double Cut, Hartwell's, ₩ gro., $5.00..25%
Double Cut, Douglass'.....40&10%
Double Cut, Ives.....60@60&10%

Hollow Augers—

Ives', French, Swift & Co. (Beecher) Douglass'.....33⅓@33⅓ &10%
Bonney's Adjustable, ₩ doz $48.....50%
Stearns'.....30&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25@35&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%

Ship Augers and Bits—

L'Hommedieu's.....15&10@15&10&5%
Watrous'.....25@25&10%
Snell's.....25@25&10%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10&5%

Awl Hafts—See *Hafts, Awl.*

Awls—

Awls, Sewing, Common....₩ gr. 85¢@90¢
Awls, Should. Peg.....₩ gr. $1.50@$1.55
Awls, Pat. Peg.....₩ gr. 35¢@38¢
Awls, Shouldered Brad..₩ gr. $1.30@ 1.40
Awls, Handled Brad....₩ gr. $2.50@$3.00
Awls, Handled Scratch..₩ gr. $4.00@4.50
Awls, Socket Scratch..₩ doz. $1.10@$1.20

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

	Plain.	Beveled.
First quality, best brands	$7.00	$7.50
First qual., other brands	6.50 / 6.75	7.00
Second quality	5.50	6.00

Axle Grease—See *Grease, Axle.*

Axles—

No. 1....3¼@3¼¢, No. 2, 5¢@6¢
Nos. 7 to 14.....60&10%
Nos. 15 to 18.....47½% } 3% cash
Nos. 19 to 22.....70%
Concord Axles, loose collar.....4½@6¢
Concord Axles, solid collar.....5½@7¢
National Tubular Self Oiling.....33⅓@33⅓&5%

Bag Holders—See *Holders, Bag.*

Balances—

Spring Balances.....40%

No.	2000	20	30
Chatillon, ₩ doz.	$2.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50&10%

Barb Wire.—See *Wire, Barb.*

Bars—

Crow—

Cast Steel.....₩ ℔ 3½¢
Iron, Steel Points.....₩ ℔ 3¢

Basins, Wash—

Standard Fiberware, No. 1, 10¼-in., $1.80; 12-inch, $2.00; 13¼ inch, $2.50; 15-inch, $3.00.

Beams, Scale—

Scale Beams, List Jan. 12, '83..50&10@ 50&10&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Beaters—

Egg—

Dover.....₩ doz $1.00@$1.20
Duplex (Standard Co.).....₩ doz $1.00
Dover (Standard Co.).....₩ doz $1.00
Duplex Extra Heavy (Standard Co.)..... ₩ doz. $3.50
Bryant's.....₩ gross $14.00
Double (H. & R. Mfg. Co.), ₩ gro., No. 0 $12.00; No. 1, $15.00; No. 2.....$36.00
Easy (H. & R. Mfg. Co.).....₩ gro $12.00
Triple (H. & R. Mfg. Co.).....₩ gro $16.50
Spiral.....₩ gro $4.25 @ $4.50
Improved Acme (H. & R. Mfg. Co.)..... ₩ gro. $9.00
Silver & Co..... ₩ doz $5.50

Culinary—

Keystone, P. D. & Co., Each, No. 1, $1; No. 2, $2.....20%

Bells—

Cow—

Common Wrought.....60&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Kentucky Durham.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10@50&10&5%

Door—

Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Brooks'.....50&10&2%
Crank, Cone's.....10%
Crank, Connel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. & E. Mfg. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%

Electric—

Wollensak's.....20%
Bigelow & Dowse.....20%

Hand—

Light Brass.....70&10@70&10&5%
Extra Heavy.....70%
White.....70%
Silver Chime.....33⅓&10%
Globe Cone's Patent).....25&10@35%

Miscellaneous—

Call.....45@50%
Farm Bells.....₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Bellows—

Blacksmiths'.....60&10&5@60&10&10%
Molders'.....40&10@50%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70@10@75&5%
Standard.....70&5@70&10%
Extra.....60&10@60&10&5%
N.Y.B.&P. Co., Carbon.....60%
N.Y.B.&P.Co., Diamond.....50%
N.Y.B.&P.Co., Para.....40%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%
Green River Tire Benders and Upsetters.....20%

Bits—

Auger, Gimlet, Bit Stock Drills, &c., see *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks—

Cleveland Block Co., Mal. Iron.50@50&10%
Moore's Novelty, Mal. Iron.....50%
Sure Grip Steel Tackle Blocks.....25%

Bolts—

Carriage, Machine, &c.—

Com. list June 10, '84.....75&10&5@30%
Genuine Eagle, Norway, list Oct. '84.... 80&5@30&10%
Eagle, Norway, list Oct. '84 80&10@80&15
Phila. pattern, list Oct. 7, '84..... 80%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890.....80&10%
Bolt Ends, list Jan. 1, 1890.....80&10%

Door and Shutter—

Cast Iron Barrel, Square, &c.....70&10%
Cast Iron Shutter Bolts.....70&10%
Cast Iron Chain (Sargent's list).....65&10%
Ives' Patent Door Bolts..60&10@60&10&5%
Wrought Barrel.....70&10@75%
Wrought Square.....70&10@75%
Wr't Shutter, all iron, Stanley's..... 60&10@60&10&10%
Wr't Shutter, Brass Knob.....50@50&5%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list....60&10%
Wr't Sunk Flush, Stanley's list.50&10&5%
Wr't B. K.Flush, Common.....55&10%

Stove and Plow—

Stove.....60&10@60&10&5%
Plow.....60&10&50@60&10&10%
R. B. & W., Plow.....55%

Tire—

Common, list Feb. 28, '83.....65@65&5%
Port Chester Bolt and Nut Company:
Empire list Feb. 28, '83.....65%
Keystone, Philadel., list Oct. '84.....80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phila., list Oct. 16, '84.....75%
Eagle, Phila., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R. B. & W., Philadel., list Oct. 16, '84..80%

Borers, Tap—

Common and Ring.....20&10%
Ives' Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20%
Clark's.....33⅓@35%

Borax—

Per ℔.....9¼@10¼¢

Boring Machines—See *Machines, Boring.*

Bow Pins—See *Pins, Bow.*

Boxes, Wagon—

Per ℔.....3¼¢

Boxes, Miter.

Spiker's Excelsior, 3 in. $7.50, 4 in $8 50, 5 in. $13.00, 6 in. $15.00.....20%

Braces—

American Bit Brace and Tool Co.
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 36, 37.....70&10&5
Amidon's,
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Ratchet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10; 10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
Barber's.....50&10%
Saxton's,
Barker's Imp. Polished.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet, Polished.....50&10@60%
Ratchet, Nickeled.....40&10@50%
Buffalo Ball.....net, $1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's Nos. 70 to 120, 81 to 123. 207 to 414 50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barber's.....60&5%
Spofford.....60&5@60&10%
P. S. & W. Co., Peck's Patent.....60%
Rose & Johnson.....50%
Davis Patent.....50&10%

Brackets—

Shelf, plain,
Regular, list.....65@70%
Sargent's list.....60&10@70&10%
Shelf, fancy,
Sargent's list.....70@70&10%
Other makes at a wide range of prices.
Bradley Shelf Brackets.....70&10%

Bright Wire Goods—See *Wire.*

Broilers—

Henis' Self-Basting. } Inch..... 9 10 9x11
Per doz...$4.50 5.50 6.50
New Haven.....50%
Wire Goods Co.....65&10%
Morgan Odorless.....₩ doz. $12, 50%
Queen City.....33⅓%

Buckets, Well—Galvanized—

Hill's.....₩ doz. 12 qt. $4.25; 14 qt. $5.25
Iron Clad.....₩ doz. 14 qt. $4.25@4.50
Helwig's Flat Iron Band.....$3.75
Helwig's Wired Top.....₩ doz $4.00

Bull Rings—See *Rings, Bull.*

Butcher's Cleavers—See *Cleavers Butcher's.*

Brass—

Wrought Brass.....30&30&10%
Cast Brass, Tiebout's.....30%
Cast Brass, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—

Fast Joint, Narrow.....50&10&5@60%
Fast Joint, Broad.....50&10@60%
Loose Joint.....
Loose Joint, Japanned.....
Loose Joint, Jap. with Acorns..
Parliament Butts.....
Mayer's Hinges..... } 75@75 &10%
Loose Pin, Acorns.....
Loose Pin, Acorns, Japanned..
Loose Pin, Acorns, Japanned, Plated Tips.....

Wrought Steel—

Fast Joint, Narrow..... } List Jan. 2 1893. 60@60&10%
Fast Joint, Lt. Narrow.....
Fast Joint, Broad.....
Loose Joint, Broad.....
Table Butts, Back Flaps, &c.....
Inside Blind, Regular.....
Indide Blind, Light.....
Loose Pin.....
Bronzed Wrought Butts.....50@50&10%

Calipers—See *Compasses.*

Calks, Toe—

Gautier, One Prong, Blunt.....5½@6¢
Burke's One Prong, Blunt.....5½@6¢
Burke's, Two Prong, Blunt.....7½@8¢
Burke's, One Prong, Sharp.....6½@7¢

Can Openers—See *Openers, Can.*

Cans, Milk—

S. S. & Co.: 5-gal., $3.00; 8-gal., $4 47; 10-gal., $4.75 each.....40&10%

Caps—

Percussion—

Hicks & Goldmark's and Union Metallic Cartridge Co.....₩ 100
F. L. Waterproof, 1-10's.....32@37¢
E. B. Trimmed Edge, 1-10's.....47@50¢
E. B. Grnd. Edge, Cent. Fire, 1-10's..... 47@50¢
Musket, Waterproof, 1-10's.....50@55¢
G. D.....37@30¢
S. B. Genuine Imported.....45¢
Eley's E. B.....50@55¢
Eley's D Waterproof, Central Fire..$1.20

Primers—

Berdan Primers, $1.00.....35
B. L. Caps (Sturtevant Shells) $1.00.....25
All other Primers, $1.20.....25

Cards—

Watson's Cotton, Wool, Horse and File, list January 28, 1891.....30%

Carpet Stretchers—See *Stretchers, Carpet.*

Cartridges—

Rim Fire Cartridges.....50&5&2%
Rim Fire Military.....15&2%
Cent. Fire, Pistol and Rifle.....25&5&2%
Cent. Fire, Military and Sporting 15&5&2%
Blank Cartridges, except 22 and 32 cal., additional 10% to above discounts.
Blank Cartridges, 22 cal., $1.75.....25
Blank Cartridges, 32 cal., $3.50.....25
Primed Shells and Bullets.....15&5&2%
B. B. Caps, Round Ball, $1.75.....25
B. B. Caps, Con. Ball, Swgd., $2.00.....25

Carpet Sweepers—See *Sweepers, Carpet.*

Casters—

Bed, Plate, Shallow Socket... } Brass.....55&5&10%
Others.....60&10&10%
Deep Socket.....40&10%
Martin's Patent (Phœnix).45&10&5&10%
Tucker's Patent, low list.....45%
Payson's Anti-friction.....70@70&10%
Payson's Truck.....60@60&10%
Yale Casters, low list.....45%
Yale, Gem.....70%
Giant Truck Casters.....35%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50&50&10%
Gwinner's Common Sense.....45%
Gwinner's Hercules.....45%

Cattle Leaders—See *Leaders, Cattle.*

Cement—

Victor Elastic.....5 ℔ pails ₩ ℔ 8¢

Chain—

Trace, Wagon and Fancy Chains, List revised May, 1893.....60@60&10%
American Coil, in cask lots,

3-16	¼	5-16	⅜	½	⅝	¾
$7.60	5.30	4.45	3.80	3.65	3.50	3.40

Less than cask lots, add 1¢@2½¢ ₩ ℔
German Coil, list July 12, 1892.....60@60&10%
German Halter Chain, list July 12, 1892. 60@60&10%
Covert Halter.....60&5%
Covert Traces.....55&5%
Covert Heel Chain.....50&5%
Galvanized Pump Chain.
5 ton lots.....₩ 100 ℔ $5.50
1-ton lots.....₩ 100 ℔ $5.75
500-℔ lots.....₩ 100 ℔ $6.75
Less than 500 ℔.....₩ 100 ℔ $7.00
Oneida Halter Chain.....60@60&5%
Jack Chain, Iron and Brass, list March 10, 1893.....60@60&10%
Barnes' Reinforced Sash.....60&10%
Barnes' Victor Sash.....65%

Chalk—

White, case lots. ₩ gr 50¢; small lots.80¢
Red, case lots....₩ gr 67¢; small lots.75¢
Blue, case lots....₩ gr 75¢; small lots 90¢
See also Crayons

Chalk Lines—See *Lines.*

Checks, Door—
Unity 50%

Chisels—
Socket Framing and Firmer
P. S. & W ..... } 75&10@75&10&10%
New Haven ..... }
Witherby, ... }
Mix ..... }
Ohio Tool Co. ..... }
Douglass .....75@75&5%
Buck Bros 30%
Merrill .....60&10@60&10&5%
L. & I. J. White .....30@30&5%

Tanged and Miscellaneous.
Tanged Firmers .....50@50&10%
Butchers' .....$4.75@$5.00
Spear & Jackson's .....$5 to £
Buck Bros 30%
Cold Chisels, ₩ ℔ .....15@16¢

Chucks—
Beach Pat .....each, $8.00 .....20%
Morse's Adjustable, each, $7.00,20@20&5%
Danbury .....each, $6.00,30@30&5%
Syracuse, Balx Pat 25%
Graham Patent 33⅓%
Skinner's Patent Chucks.
Combination Lathe Chucks 33⅓%
Universal Lathe Chucks 40%
Independent Lathe Chucks 40%
Drill Chucks 15%
Union Mfg. Co.
Victor $8.50, 25%
Combination 40%
Universal 40%
Independent 40%

Churns—
Timn Union, each, 5 gal. $3.25; 7 gal., $3.75; 10 gal., $4.25.
McDermaid Star Barrel Churn, each 6 gal., $2.60; 10 gal., $2.75; 15 gal., $3.00; 20 gal., $3.25.

Clamps—
S. I. Tool Co.'s Wrought Iron 25%
Adjustable, Cincinnati .....15&10%
Adjustable, Hammers .....15@15&5%
Adjustable, Stearn's .....30@30&10%
Stearn's Adjustable Cabinet and Corner .....30@30&10%
Cabinet, Sargent's .....70&10%
Carriage Makers', Sargent's .....75@75&5%
Carriage Makers', P., S. & W Co. .....40&10%
Eberhard Mfg. Co .....40&5@40&10%
Warner's .....40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenter's, Cincinnati .....25&10%
Barnes' Machinists' Clamps 33⅓%

Cleavers, Butchers'—
Bradley's .....25@30%
L. & I. J. White .....20&5%
Beatty's .....40@40&5%
New Haven Edge Tool Co.'s 40%
P., S. & W .....33⅓&5@33⅓&10%
Foster Bros 30%
Schulte, Lohoff & Co .....40@40&5%

Clips—
Norway, Axle, ¼ & 5-16 .....55&5&5%
2d grade Norway Axle, ¼ & 5-16 ....65&5%
Superior Axle Clips .....65%&5&70%
Norway Spring Bar Clips, 5-16 ....60&5&5%
Wrought Iron Felloe Clips .....₩ ℔, 5½¢
Steel Felloe Clips .....₩ ℔, 5¢
Baker Axle Clips 25%

Cloth and Netting, Wire
—See *Wire, &c.*

Cockeyes 50%

Cocks, Brass—
Hardware list .....60&2%

Coffee Mills—See *Mills, Coffee.*

Collars, Dog—
Chapman Mfg. Company, new list 40%
Medford Fancy Goods Co. ....40&10@50%
Embossed, Gilt, Pope & Steven's list, 30&10%
Leather, Pope & Steven's list 40%
Brass, Pope & Steven's list 40%

Combs, Curry—
Fitch's .....50&10@50&10&10%
Rubber, per doz., $10.00 .....25%
American Curry Comb Co. .....33⅓@40%
Kohler's Magic Oscillating .....₩ doz., $2.00
Kohler's Humane .....₩ doz., $1.75

Compasses, Dividers, &c.
Compasses, Calipers, Dividers .....70@70&10%
Bemis & Call Co.'s
Dividers 65%
Compasses .....50&5%
Calipers, Inside or Outside 65%
Calipers, Wing 60%
Calipers, Double 65%
Calipers, Call's Patent Inside 55%
Excelsior 50%
J. Stevens & Co.'s .....25&10%
Starrett's
Spring Calipers and Dividers ....25&10%
Lock Calipers and Dividers 25%
Combination Dividers 25%

Coolers, Water—
S. S. & Co.: 2-gal., $2.00; 3-gal., $2.50; 4-gal., $2.75; 6-gal., $3.40 each 33⅓%

Coopers' Tools—
See *Tools, Coopers'.*

Cord—
Sash—
Common .....₩ ℔, 9@10¢
Patent, good quality .....₩ ℔, 11@22¢
White Cotton Braided, fair ....₩ ℔, 24@26¢
Common Russia Sash .....₩ ℔, 12½@13¢
Patent Russia Sash .....₩ ℔, 13½@ 14¢
Cable Laid Italian Sash .....₩ ℔, 19@20¢
India Cable Laid Sash .....₩ ℔, 11½@12¢
Silver Lake—
A quality, White, 50¢ 25%
A quality, Drab, 55¢ 25%
B quality, White, 30¢ 10%
B quality, Drab, 35¢ 10%
Sylvan Spring, Extra Braided, White. 34¢
Sylvan Spring, Extra Braided, Drab. 39¢
Semper Idem, Braided, White ....27@28¢
Egyptian, India Hemp, Braided .....26¢
Massachusetts, White .....29¢
Samson—
Braided, White Cotton .....₩ ℔, 37¢
Braided, Drab Cotton .....₩ ℔, 42¢
Braided, Italian Hemp .....₩ ℔, 40¢
Braided, Linen .....₩ ℔, 56¢
Tate's Solid Braided—
Hercules, White .....₩ ℔, 25¢
Hercules, Drab .....₩ ℔, 30¢
Economy, Drab .....₩ ℔, 27¢
Economy, White .....₩ ℔ 22¢
Quaswan Mills—
Braided, Giant, Whit ₩ ℔, 30¢....20%
Braided Giant, Drab and Fancy, ₩ ℔ 35¢ 10%
Braided, Crown White, ₩ ℔, 50¢...60%
Braided, Crown Drab and Fancy, ₩ ℔ 50¢ 30%

Wire Picture—
Braided or Twisted .....80&5@80&15%

Corkscrews—See *Screws, Cork.*

Corn Knives and Cutters
—See *Knives, Corn.*

Crackers, Nut—
Table (H. & B. Mfg. Co) 40%
Blake's Pattern, ₩ doz., $2.00 .....10%
Turner & Seymour Mfg. Co 50%
Acme.
Japanned, ₩ gro., $30 .....50%
Nickel Plated, ₩ gro. $30 .....10%

Cradles—
Grain .....50&2@50&5&2%

Crayons—
White Crayons, ₩ gross .....7@8¢
D. M. Stewart Mfg. Co.:
Metal Workers', ₩ gross, $1.75 .....25%
Rolling Mill, ₩ gross, 2.50 .....25%
Railroad, ₩ gross, 2.00 .....25%
Soapstone Pencils, ₩ gross, 1.00 .....25%
See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crow Bars—See *Bars, Crow.*

Curry Combs—
See *Combs, Curry.*

Curtain Pins—
See *Pins, Curtain.*

Cutters—
Meat—
Dixon's, ₩ doz. .....40&5%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Woodruff's, ₩ doz. .....40&5%

Nos.	100	150
	$15.00	$18.00

Hale's Pattern, ₩ doz. 70%

Nos.	11	12	13
	$27.00	$33.00	$45.00

American 30%

Nos.	1	2	3	4	5
Each	$5	$7	$10	$25	$50
	$60				

Enterprise 25%

Nos.	10	12	22	32	42
Each	$3	$2.50	$4	$6	$15

Great American Meat Cutter ..30@30&5%

Nos...	112	116	118	120	122
Each..	$2.00	$2.75.	$3.00	$3.50	$4.00

Miles' Challenge, ₩ doz. .....45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

Home No. 1, ₩ doz., $26.00 .....55&10%
Draw Cut, each:

Nos.	5	6	8
	$50	$75	$80 $225

.....20@25%
Beef Shavers (Enterprise) 20%
Little Giant (P. S. & W. Co.) 50%
Chadborn's Smoked Beef Cutter, ₩ doz., $66.00

Slaw and Kraut—
Tucker & Dorsey Mfg. Co.:
Slaw Cutters, 1 Knife, ₩ gross ...$21.00
Slaw Cutters, 2 Knife, ₩ gross... 30.00
Kraut Cutters 40%

Tobacco
Champion .....20&10@30%
All Iron .....₩ doz., $4.25
Nashua Lock Co.'s..₩ doz., $18.00, 50&55%
Wilson's 55%
Sargent's .....₩ doz., $24.00, 55&10
Acme .....₩ doz., $20.00, 40%

Washer—
Smith's Pat....₩ doz., $12.00, 20&10&10%
Johnson's .....₩ doz., $11.00, 33⅓%
Penny's..₩ doz.,, Pol. $14; Jap'd, $16, 55%
Appleton's .....₩ doz., $18.00, 60&10%
Bonney's .....30&10%
Cincinnati .....25&10%

Dampers, &c.—
Dampers, Buffalo .....40&10%
Buffalo Damper Clips .....40&10%
Crown Damper 40%
Excelsior Hot Air 50%

Diggers, Post Hole, &c.—
Samson, ₩ doz., $34.00 .....25@25&10%
Fletcher Post Hole Augers, ₩ doz., $36.00, 20@20&10%
Eureka Diggers .....₩ doz. $12.00@$13.00
Vaughan's Post Hole Auger, ₩ doz., $8.50@$9.50
Kohler's Little Giant .....₩ doz., $18.00
Kohler's Hercules .....₩ doz., $14.00
Kohler's Invincible .....₩ doz., $12.00
Kohler's New Champion ....₩ doz., $8.00
Scheidler .....₩ doz., $18.00
Cronk's Post Bars, ₩ doz., $60.00, 50&5@50&10%
Gibb's Post Hole Digger .....₩ doz., $15.00
Gibbs' National .....₩ doz., $12.00
Gibbs' Columbia .....₩ doz., $13.00
Gibbs' Imperial .....₩ doz., $7.50
Shimer's Hollow Handle..₩ doz., $24.00, 50%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—
See *Checks, Door.*

Door Springs—
See *Springs, Door.*

Drawers.
Money, ₩ doz .....$18@$20
Waddell's Improved, ₩ doz $15.00

Drawing Knives—
See *Knives, Drawing.*

Drills and Drill Stocks—
Blacksmiths' .....each $1.75
Blacksmiths' Self-Feeding, each $7.50, 20%
Breast, P. S. & W .....40&10%
Breast, Wilson's .....30&5%
Breast, Millers Falls .....each $3.00, 25%
Breast, Bartholomew's ....each $2.50 25&10&40%
Ratchet, Merrill's .....20@20&5%
Ratchet, Ingersoll's 25%
Ratchet, Parker's .....20@20&5%
Ratchet, Whitney's .....20&10%
Ratchet, Weston's .....20@25%
Ratchet, Moore's Triple Action....25@30%
Ratchet, Curtis & Curtis 30%
Whitneys Hand Drill, Plain, $11.00; Adjustable, $12.00 .....20&10%
Automatic Boring Tools .....$1.75@$1.85
Chicopee Automatic Drill .....20&10%
Goodell Automatic Drills .....40&5%

Twist Drills—
Cleveland .....50&10&10%
Diamond, W. & B .....50&10&10%
Graham's Pat. Groove Shank..50&10&10%
Morse .....50&10&10%
New Process .....50&10&10%
Standard .....50&10&10%
Syracuse (Meta list) .....50&10%

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—
See *Pans, Dripping.*

Drivers, Screw—
Douglass Mfg. Co .....20@20&10%
Disston's 50%
Buck Bros 30%
Stanley R. & L. Co.'s
No. 64, Varnished Handles .....65&10%
No. 80 .....70&10%
Sargent & Co.'s
No. 1, Forged Blade .....60&10&10%
Nos. 20, 40 and 60 .....66⅔&10&10%
P. S. & W 70%
Knapp & Cowles
No. 1 .....60&20@70%
No. 2 .....60&10&10@70&5%
No. 3 .....60&5@60&10%
Nos. 4 and 00, Acme and Ideal...50&5@50&10&5%
Stearns' .....25&10&5%
Gay & Parsons 35%
Champion .....25&10%
Clark's Pat .....30@33⅓%
Crawford's Adjustable 30%
Ellrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list 25%
Kolb's Common Sense..₩ doz., $6.00, 25&10%
Syracuse Screw-Driver Bits ....30&30&5%
Screw Driver Bits .....₩ doz., 50@75¢
Screw Driver Bitts, Parr's..₩ gross, $6.25
Fray's Hol. H dle Sets...No. 3, $12.00, 45%
P. D. & Co.'s All Steel 50%
Cincinnati .....25&10%
Brace Screw Drivers .....25&10%
Buck Bros.' Screw Driver Bits....27½&5%
Goodell's Automatic 50%
Mayhew's Black Handle 50%
Mayhew's Monarch .....45&10%
C. T. Williamson Wire Novelty Co....50%

Egg Beaters—See *Beaters, Egg*

Egg Poachers—
See *Poachers, Egg.*

Electric Bell Sets—
See *Bells, Electric.*

Emery—No. 4 to No. 54 to Flour, CF.

	46 gr.	150 gr.	F.FF.
Kegs, ₩ ℔	4½¢	5 ¢	2¾¢
¼ kegs, ₩ ℔	4¾¢	5¼¢	2¾¢
½ kegs, ₩ ℔	5 ¢	5½¢	3 ¢

10-₩ cans, 10 in case .....6 ¢ 6¼¢ 5 ¢
10-℔ cans, less than 10 .....10 ¢ 10 ¢ 7½¢

Enameled and Tinned Ware—See *Ware, Hollow*

Escutcheon Pins—
See *Pins, Escutcheon.*

Escutcheons—
Door Lock....Same dis. as Door Locks.
Brass Thread .....60@60&10%
Wood 25%

Expanded Metal—
List No. 5.
Lathing 10%
Fencing, Painted Sheets 20%
Netting, Painted Sheets 20%
Door Mats, Galvanized 25%
Window Guards, Paneled 15%
Tree Guards, Paneled 15%

Extractors, Lemon Juice
—See *Squeezers, Lemon.*

Fasteners, Blind—
Mackrell's, ₩ doz., $1.00 .....20@20&10%
Van Sand's Screw Pat, $15 ₩ gr.. 60&10%
Van Sand's Old Pat., $15 ₩ gr.....55&10%
Austin & Eddy No. 2008 .....₩ gr., $9.00
Security Gravity .....₩ gr., $9.00
Zimmerman's .....50&10%

Faucets—
Fenn's 40%
Fenn's Cork Stops 33⅓%
Star 60%
Frary & Pat. Petroleum 60%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list 40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@60&10&10%
Cork Lined .....70&5@70&10%
Burnside's Red Cedar 50%
Burnside's Red Cedar, bbl. lots....50&10%
John Sommers'
Peerless Best Block Tin Key 40%
IXL, 1st quality, Cork Lined..... 50%
Diamond Lock 40%
Perfection, Fla. Red Cedar (in boxes)40%
Boss Metallic Key 50%
Reliable Cork Lined 60%
O. K. Western Pattern Cork Lined..50%
No Brand, Red Cedar (in bbls.)..50&10%
Western Pattern Metal Key 40%
No Brand Metal Key 60%
Self Measuring
Enterprise, ₩ doz., $36.00 .....20%
Lane's ₩ doz., $36.00 .....25&10%

Felloe Plates—
See *Plates, Felloe.*

Fibre Ware—See *Ware, Fibre.*

Fifth Wheels—
Derby and Cincinnati .....45&5%
Brewster .....50&5%

Files—
Domestic—
Nicholson Files, Rasps, &c. .60&10&5@60&10&10%
Nicholson (X.F.) Files 25%
Nicholson's Royal Files (Seconds) ....75% (extra prices on certain sizes.)
American .....66⅔&10@66⅔&10&5%
G. & H. Barnett (Black Diamond) 60&10@60&10&5%
Arcade .....60&10&10@70%
Eagle .....60&10&10@70%
Other makers, best brands..60&10&5@70%
Fair brands .....70&10@70&10&10%
Second quality .....80@80&5%
Heller's Horse Rasps .....50&7½@50&10%
McCaffrey's Horse Rasps .....50&10%
Chelsea Horse Rasps, Hand Cut...50&10%
Arcade Horse Rasps .....60&10@60&10&5%
Trojan Horse Rasps .....60&10&5%

Imported—
Butcher .....Butcher's list, 20%
Stubs .....Stubs list, 25@30%

Fixtures, Grindstone—
Sargent's Patent .....70&10%
Reading Hardware Co .....30&10%
P., S. & W. Co .....50&10%

Fluting Machines—
See *Machines, Fluting.*

Fluting Scissors—
See *Scissors, Fluting.*

Fodder Squeezers—
See *Squeezers, Fodder.*

Forks—
Hay, Manure, &c. Asso. List, 70@70&5&2½
Hay, Manure, &c., Phila. List, 60@60&10&2½
Plated, see Spoons.

Frames—
Saw—
White Vermont .....₩ gro., $9.00@$10.00
Red, Polished and Varnished....₩ doz., $1.50, 2½

Screen, Window and Door—
Porter's Pat. Window and Door Frame, 33⅓&10%
Warner's Screen Corner Irons....33⅓@ 33⅓&10%
Stearns' Frames and Corners..25@25&10%
Cortland .....40@40&5
Phillips' Window Screen Frames..... 50@50&5%
Bonanza Window Screens..50&5&50&10%
Empire Fancy Screen Doors, ₩ doz ..$12

Freezers, Ice Cream—
White Mountain .....60@60&5%
Granite State .....65@65&5%
Arctic .....70@70&5%
American 60%
Buffalo Champion .....65@65&5%
Shepard's Lightning .....65@65&5%
Gem 65%
Blizzard 70%
Double Action Crown 60%
Crown 60%
Star 60%
Peerless .....60&10%
Giant 60%
Zero 70%
Boss and Pet .....60&10&10&10%
Keystone, P., D. & Co., each, $1.50 ....20%
Standard .....60@60&5%
Standard Double Action .....60@60&5%
Expert .....65@65&5%
Model .....60@60&5%
Confectioners' Machine 50%

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fruit Pickers—
See *Pickers, Fruit.*

Fry Pans—See *Pans, Fry.*

Funnels—
Gersdorff's Perfection, Standard and Globe; *Tin*, 1 gro., 10%; 2 to 5 gro., 20%; 5 to 10 gro. 30%
Copper, 1 to 6 doz., 15%; 6 to 12 doz., 20%; over 12 doz. 25%

Furnaces, Soldering—
Burgess No. 3 Gem tin reservoir....$7.00
Burgess No. 3 Gem, Copper reservoir..$8.50
Clayton & Lambert No. 1 Fire-Pot, complete $6.00

Fuse—Dis. 12½@15%. ₩ 1000 ft.
Common Hemp Fuse, for dry ground..$2.70
Common Cotton Fuse, for dry ground 2.85
Single Taped Fuse, for wet ground.. 3.85
Double Taped Fuse, for very wet gr.. 4.80
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water. 12.00

Gates, Molasses—
Stebbin's Pattern .....80@80&5%
Stebbin's Genuine .....60&10&10%
Stebbin's Tinned Ends .....40&10%
Lincoln's Pattern .....70@70&10%
Weed's .....20&10%
Boss, ₩ doz.:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10 .....60&10&10%

Gauges—
Marking, Mortise, &c .....60&10%
Starrett's Surface, Center and Scratch. 25&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge .....20&10%
Barrett's Comb. Roller Gauge .....
₩ doz $8.00@$8.50
Hoague & Peck's Champion Gauge—
With Scale .....₩ doz., $5.00
Without Scale .....₩ doz., $4.00
Wire, Wheeler, Madden & Co 10%
Wire, Morse's 30%
Wire, Brown & Sharpe's .....10&30%
Wire, P., S. & W. Co .....10&10%

Gimlets—
Nail and Spike .....50&10&5%
Eureka Gimlets .....60&10%
Diamond Gimlets .....₩ gr $5.00
Double Cut, Shepardson's .....45@45&5%
Doub e Cut, Ives' .....60@60&5%
Double Cut, Douglass' .....40&10%

Glue—
Le Page's Liquid .....25@25&5%
Upton's Liquid 35%
Improved Process .....25@25&5%
Dodd's Liquid Glue .....25@25&5%

Glue Pots—See *Pots, Glue.*

Grease, Axle—
Fraser's .....Keg ₩ ℔ 4¢, Pail ₩ ℔ 5¢
Fraser's, in boxes .....₩ gr $2.50
Dixon's Everlasting, in bxs..₩ doz 1 ℔ $1.20; 2 ℔ $2.00
Dixon's Everlasting....10-℔ pails, ea. 85¢
Lower grades, special brands, ₩ gr $5.50@$7.00
Axleine, tin boxes .....₩ gross $12.00
English Coach, wooden boxes ..... ₩ gross $8.50
English Coach, 5-℔ tin pails..₩ doz. $3.50
Tiger, wooden boxes .....₩ gross $7.00
Tiger, 5-℔ tin pails .....₩ doz $2.35

Grindstones—
Family, regular list 60%
Family, Cleveland Stone Co 30%

Grindstone Fixtures—
See *Fixtures, Grindstone.*

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*
Hafts, Awl—
Sewing, Brass Fer. ₩ gr $1.75
Pat. Sewing, Short. ₩ doz .....45@45%
Pat. Sewing, Long .....₩ doz $1.20
Pat. Peg, Plain Top..₩ doz .....40@45%
Pat Peg, Leather Top. .₩ doz @50%

Halters—
Covert's, Rope, Jute.....60&10&10&2%
Covert's Rope, 7-16-in., Jute.....70&2%
Covert's Rope, ¼-in., Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 60&10&2%
Covert's Jute Horse Ties.....70&2%
Covert's Jute Cattle Ties.....70&10&2%
Covert's Adj. Web Halters.....35&5&2%
Covert's Saddlery Works Halters..33⅓%
Covert's Saddlery Works Horse and Cattle Ties.....33⅓%
Covert's Saddlery Works Handy Web Halters.....33⅓%

Hammers—
Handled Hammers—
Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.....
Humason & Beckley.....
Atha Tool Co.....
Verree.....
} ....50&10%
C. Hammond & Son.....40&10@—%
Fayette R. Plumb.
Artisans' Choice, A. F. Nail.....40&10%
Regular Y. & P., A. E. Nail.....50%
Horseshoe Turning Hammers.....50%
Other Hammers.....50&10%
Cheney's Claw.....40&10%
Cheney's Machinist's & Riveting...50&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles, new list.....25&10
Peck, Stow & Wilcox.....35@40%
Sargent's.....40@40&10%

Heavy Hammers and Sledges—
8 ℔ and under...℔ 40¢
8 to 5 ℔.....℔ 36¢
Over 5 ℔.....℔ 30¢
} 75&10@75&10 &5%
Wilkinson's Smiths.....10½¢@11¢℔

Handcuffs and Leg Irons
—See *Police Goods.*

Handles—
Cross-Cut Saw Handles—
Atkins', new list.....40%
Champion.....15%
gly's Perfection.....℔ doz., $3.00

Iron, Wrought or Cast—
Door or Thumb.

Nos.	0	1	2	3	4
Per doz.	$0.90	1.00	1.08	1.35	1.50

60&10&10%
Roggin's Latches.....℔ doz 30¢@35¢
Bronze Iron Drop Latches..℔ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no plate, $0.88.....net
Barn Door, ℔ doz $1.40.....10&10%
Chest and Lifting.....70&70&10%

Wood—
Saw and Plane.....40&10@50%
Hammer, Hatchet, Axe, &c.....40@40&5%
Brad Awl.....℔ gr $2.00
Hickory Firmer Chisel, ass'd..℔ gr 4.50
Hickory Firmer Chisel, large..℔ gr 5.00
Apple Firmer Chisel, ass'd...℔ gr 5.00
Apple Firmer Chisel, large...℔ gr 6.00
Socket Firmer Chisel, ass'd..℔ gr 5.00
Socket Framing Chisel, ass'd.℔ gr 5.00
} 40&10@50%
J. B. Smith & Co.'s Pat File.....50%
File, assorted.....℔ gr 2.75
Auger, assorted.....℔ gr 5.00
Auger, large.....℔ gr 7.00
} 50%
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass.....℔ set $1.25
Pat. Auger, Swan's.....℔ set $1.00
Hoe, Rake, Shovel, &c.....60@60&5%

Hangers—
Barn Door, old patterns.....70@70&5%
Barn Door, New England.....70@70&5%
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Steel Track.....55%
Champion.....60&10%
Climax Anti-Friction.....55%
Zenith for Wood Track.....55%
Sterling.....50&10@60%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Kidder's.....50&50&10%
Boss.....60&10@60&10&5%
Best Anti-Friction.....60&10@60&10&5%
Duplex (Wood Track).....60&10&5%
Terry's Modern.....50&10@50&10&5%
Terry's Ideal.....50&10@50&10&5%
Terry's Solid.....50&10@60%
Terry's Shield.....50&10@60%
Terry's Wrought Single Strap.....50&10%
Cronk's Patent, Steel Covered.....50&10%
Carrier Steel Anti-Friction.....50&10%
Richards'.....30@30&10%
Lane's New Standard.....50@50&5%
Lane's Standard.....50&5@50&10%
Lane's Parlor.....40%
Warner's Pat.....20&10&10%
Stearns' Anti-Friction.....20&10&10%
Stearns' Challenge.....25&10&10%
Cincinnati Nos. 1, $2.25; 3, $2.50; 4, $2.50.
Paragon, Nos. 5, 5¼, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel, Steel, Nos. 0, $25; 1, $20; 2, $15.....40&10@50%
Chicago Anti-Friction.....30&10%
Star.....40&10@40&10&5%
Barry.....50%
Interstate.....50&10@60%
Pendulum, Payson's.....40@40&10%
Moody.....45%
Economy, $6.00.....50&10%
Perfection.....50&10@50&10&5%
Lundy, Steel Parlor.....40%
Matchless.....50&10%
Magic.....45&10%
Moore's Elevator.....33⅓%
Moore's Baggage Car Door.....33⅓%
Moore's Railroad.....55%

Harness Snaps—See *Snaps.*

Hatchets—
American Axe and Tool Co.
Blood's.....
Hunt's.....
Hurd's.....
Mann's.....
Peck's.....
Underhill's.....
Buffalo Hammer Co.....
Fayette R. Plumb.....
C. Hammond & Son.....
Kelly's.....
Sargent's & Co.....
P., S. & W. Co.....
Ten Eyck Edge Tool Co.....
} 40 & 10 @ 50&5%
Collins.....10%
Schulte, Lohoff & Co.....50&10&5%

Hay and Straw Knives—
See *Knives.*

Hinges—
Blind Hinges—
Parker.....75&2%
Huffer.....50%
Clark's, Nos. 1, 3, 5, 40 and 50..80@80&5%
Clark's Mortise Gravity.....50%
Sargent's, Nos. 1, 3, 5, 11, 12, 13..75@75&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's.
Noiseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible....70&10&5@75%
Clark's, Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%

Gate Hinges—
Western.....℔ doz $4.20, 60@60&10%
N. E.....℔ doz $7.80, 60@60&10%
N. E. Reversible ℔ doz...$5.60, 6(@60&10%
Clark's, Nos. 1 ,2, 3.....60&10&5%
N. Y. State.....℔ doz $4.90,60@60&10%
Automatic.....℔ doz $12.50, 50%
Shepard's.....60&10&5%

Spring Hinges—
Geer's Spring and Blank Butts....40%
Union Spring Hinge Co.'s list, March, 1886.....20%
Barker's Double Acting.....25%
Union Mfg. Co.....25%
Bommer's.....30%
Buckman's.....15@20%
Chicago.....30%
Bardsley's Patent Checking.....15%
Acme.....30%
U. S.....25&10%
Empire and Crown.....20%
Hero and Monarch.....55%
American, Gem and Star.....20%
Oxford.....20%
Royal.....66⅔%
Reliable.....60%
Champion.....60%
No. 10 Matchless.....60%
No. 25 Unbreakable.....60%
J. G. C. Covered, ℔ gro., $30.....50&5%
Samson.....60@60& 10%
Wiles', No. 1, ℔ gro., $16; No. 2.....$13
Devore, No. 1.....℔ gro , $13.00
Rex.....℔ gro., $13.00
Freeport.....℔ gro., $12.00
New Idea Nos. 1 and 10....℔ gross $13.00
New Idea Dbl. Acting.....45%
Ideal No. 3.....℔ gross $10.00
Stearns' Noiseless Floor Hinge, ℔ set, $5.00.....20&10@30%

Extra 5@10% often given.

Wrought Iron Hinges—
List February 14, 1891.
Strap and T.....50&10@50&10&5%
Corrugated Strap and T.....50&10&5%
Screw Hook and Strap.....
6 to 12 in., ℔ ℔.. 4¢
14 to 20 in., ℔ ℔..3½¢
22 to 36 in., ℔ ℔.. 3¢
Screw Hook and Eye.....
¼ in., ℔ ℔ 7¼¢
⅜ in., ℔ ℔ 5½¢
½ in., ℔ ℔ 4½¢
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10¢
Plate Hinges { 8, 10 & 12 in., ℔ ℔.....5¢ "Providence" { over 12 in. ℔ ℔.....4¢

Hoes—
Eye—
D. & H. Scovil.....20%
Lane's Crescent, Planters' Pattern.45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat.
Am. Axe and Tool Co., S. & O. Pat.....
} 60&10& 10@70%
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub.....60&10%

Handled—
Garden, Mortar, &c.....70@70&5&2%
Planter's, Cotton, &c.....70@70&5&2%
Warren Hoe.....60@60&5%
Magic.....℔ doz $4.00

Hog Rings and Ringers—
See *Rings and Ringers—*

Hoisting Apparatus—
See *Machines, Hoisting.*

Hollow-Ware—
See *Ware, Hollow.*

Holders—
Bag—
Sprengle's Pat.....℔ doz $18....60%

Bit—
Extension.
Barber's, ℔ doz $15.00.....40@40&10%
Ives, ℔ doz $30.00.....60&5@60&10%
Diagonal.....℔ doz $24.00, 40%
Angular.....℔ doz $24.00, 40&5%

File and Tool—
Bals Pat.....℔ doz $4.00, 25%
Nicholson File Holders.....20%

Sash—
Motley's Adj. Sash, Medium Size.....℔ doz $1.20, 40%

Hooks—
Cast Iron—
Bird Cage, Sargent's List....
Bird Cage, Reading.....
Clothes Line, Sargent's list..
} 60&10&10%
Clothes Line, Reading list, 60&10@60&10&10%
Ceiling, Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading. 50&10@50&10&10%

Wrought Iron—
Cotton.....℔ doz $1.25
Cotton Pat. (N. Y. Mallet and Handle W'ks.....30%
Tassel and Picture, T. & S. Mfg. Co....50%
Wrought Staples Hooks, &c. See Wrought Goods

Wire—
Wire Coat and Hat, Gem, list April, 1886.....60@60&10
Wire Coat and Hat, Miles, list April, 1886.....50@50&10%
Indestructible Coat and Hat...45@45&5%
Wire Coat and Hat, Standard.60@60&10%
Handy Hat and Coat.....50&10@60%
Steady Ceiling Hooks.....50&10@60%
Belt.....80&15@80&20%
Atlas, Coat and Hat.....55%
Williamson's Bird Cage Hooks, List April, 1892.....40%
Bright Wire Goods—See Wire.

Miscellaneous—
Grass, No. 2, $2.00; No. 3, $2.10; No. 4, $2.25
Nolin's Grass.....℔ doz $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks—See Bench Stops.

Horse Nails—See *Nails, Horse*

Horse Shoes—
See *Shoes, Horse.*

Hose, Rubber—
Competition.....75@75&10&5%
Standard.....60&10&10@70&10%
Extra.....60@60&10%
N. Y. B. & P. Co., Para.....25&5%
N. Y. B. & P. Co., Extra.....40@40&5%
N. Y. B. & P. Co., Dundee.....50&10@60%

Huskers—
Blair's Adjustable.....℔ gr $8.00
Blair's Adjustable Clipper.....℔ gr 7.00
Hubbard's Solid Steel.....℔ gr 4.50

Indurated Fiber Ware—
See *Ware, Indurated Fiber.*

Irons.
Sad—
From 4 to 10, at factory....℔ 100 ℔, $2.30@$2.40
Self-Heating.....℔ doz $8.00
Self-Heating Tailors'.....℔ doz $18.00
Enterprise Irons, list Jan. 17, 1893....30%
Enterprise Star Irons, list Jan. 17, '93..30%
Crown.....60&10@60&10&5%
Ideal Irons, new list...50&10@50&10&10%
Salamander Irons.....25%
B. B. Sad Irons, ℔ ℔.....3@3½¢
Chinese Laundry (N.E.Butt Co.).8½¢, 15%
New England.....5¢, 20@20&5%
Mahony's Troy Pol. Irons.....25%
Sensible, list Jan. 91.....50&10&5%
Sensible Tailor's Irons.....33⅓%
National Self-Heating.....30%

Soldering—
Soldering Coppers.....℔ ℔ 19@21¢
Covert's Adjustable, list Jan. 1, 1886. 35&2%
Tinker's Dread..℔ doz $1.75; ℔ gro. $18

Pinking—
Pinking Irons, ℔ doz., 55@60¢.

Jack Screws—See *Screws.*

Jacks, Wagon—
Daisy.....33⅓%
Victor.....33⅓%
Lockport.....40%

Kettles—
Brass, Spun, Plain, list Jan. 1, '91..25&5%
Brass, Spun, Pld.W.M.list Jan. 1, '91..20%
Stamped Brass Kettles.....℔ ℔ 21¢
Enameled and Tea—See *Ware, Hollow.*

Keys—
Lock, Ass'n list Dec. 30, 1886..65&10@70%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss' Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Wollensak Tinned.....50&10%

Knife Sharpeners—
See *Sharpeners, Knife.*

Knives—
Butcher, Shoe, &c.
Wilson's Butcher Knives, List Dec 8, 1890.....25%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Jordan's AA A1 Butchers', list.....net
Nichols' Butcher Knives.....40&10%
W. W. Wilson, Butcher, 6 in., $2.00; 7 in., $2.70; 8 in., $3.80, &c.
Ames' Shoe Knives.....20@25%
Ames' Bread Knives, ℔ doz $1.50, 15@20%
Moran's Shoe and Bread.....20@20&10%
Hay and Straw—See Hay Knives.
Table and Pocket—See Cutlery.

Corn—
Bradley's.....10%
Wadsworth's.....25@25&10%

Drawing—
Witherby.....
P., S. & W.....
Mix.....
New Haven.....
Merrill.....
} ...75@75&10&5%
Douglass.....75&75@5%
Watrous.....15&10@5

L. & I. J. White.....30&5%
Bradley's.....2½
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@35&5%

Hay and Straw—
Lightning, from jobbers....$3.00@$3.00
Wadsworth's.....40&7½@40&10%
Carter's Needle...℔ doz. $11.00@$11.50
Heath's.....℔ doz. $13.00@$13.50
Nolin's Hay..℔ doz. $7.00@$8.00

Mincing—
Am. (2d quality), ℔ gr., 1 blade, $7 2 blades, $12; 3 blades, $18.....net
Lothrop's.....20&10%
Smith's, ℔ doz., Single, $2; Double $3 '45@50%
Knapp & Cowles.....50&10@60%
Buffalo Adjustable....℔ doz. $3.00, 33⅓%

Knobs—
Door, Mineral.....60@65%
Door, Por. Jap'd.....70@75%
Door, Por. Nickel.....$2.00@$2.50
Door, Por. Plated Nicke..l.....$2.00@$2.50
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&2%
Shutter, Porcelain.....65&15
Carriage, Jap.....℔ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c...15%

Ladders.
Davies Extension and Single.....20&5%

Ladies—
Melting, Sargents'.....60@60&5%
Melting, Reading.....35&10%
Melting, P., S. & W.....25&10@40%
Melting, Warner's.....30%

Lanterns—
Tubular—
Regular, with Guard.....℔ doz $2.50
O. K., with Guard.....℔ doz $3.75
Side Lift, with Guard.....℔ doz $4.00
Square Lift, with Guard.....℔ doz $4.25
Anti-Friction, with Guard....℔ doz $4.50
Brass Plated, Sq. Lift, Guard.℔ doz $5.50
Cop. Plated, Sq. Lift, Guard..℔ doz $5.50

Bull's Eye Police—
2¾-inch regular.....℔ doz $2.00
3-inch regular.....℔ doz $2.90
2¾-inch flash light.....℔ doz $4.00
3-inch flash light.....℔ doz $4.50

Lawn Mowers—
See *Mowers, Lawn.*

Leaders, Cattle—
Humason, Beckley & Co.'s.....70%
Sargent's.....70&10@70&10&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

Lemon Squeezers—
See *Squeezers, Lemon.*

Lifters, Transom—
Wollensak's:
Class 3 and 4, Bronzed Iron.....60%
Class 3 and 4, Bronze Metal.....50%
Class 3 and 4, Brass.....50%
Skylight Lifters.....35%
Reiher's, list Feb. 20, 1891
Bronzed Iron Rods.....60@60&10%
Brass, Real Bronze or Nickel Plate..50%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's:
Universal.....60%
Solid Grip.....60&10@60&10&10%
Imperial.....50&10%

Lines—
Cotton and Linen Fish.....50%
Chalk.....60%
Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ℔ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No 4½, $2.50.
Mason's Colored Cotton.....45%

Wire Clothes.	Nos.	18	19	20
100 ft.		$3.50	$3.00	$2.50

Ventilator Cord, Samson Braided, White or Drab Cotton..℔ doz $7.50..50%
Ossawan Mills, Chalk, Twisted, 60%; Chalk, Soft Braided, 50% Chalk, Braided, 55%.

Links, Open—
Terry's—per gro.:

Nos.	1	2	3	4
	$6.00	8.00	12.00	16.00

Locks, &c.—
Cabinet—
Eagle, Gaylord Parker and Corbin... } List March, '84, rev. Jan. 1, '85.33⅓&2%
Deitz, Nos. 36 to 39.....40%
Deitz, Nos. 51 to 63.....40&10%
Deitz, Nos. 87 to 96.....30%
Champion Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....25&10
Champion Cab. and Combin.....33⅓%
Yale.....net price
Romer's.....35

Door, Locks, Latches, &c.—
R. & E. Mfg. Co., list Mar. 20, 1880.....
Mallory, Wheeler & Co., list July, '88.....
Sargent & Co., List Aug. 1, '88
Branford Lock Works.....
} 65&10@70% Much lower net prices often made

Britain, Graham & Mathes, list Jan. 1890.....60&10&10%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Delta Flat Key.....36%
Homer's Night Latches.....15%
Brooklyn Latches.....50&10%
Warner's Burglar Proof, ₩ doz. $8.00, 50%

Padlocks—

List June 10, 1891.....50&2%
Norwich Lock Mfg. Co., old list....50&2%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....40%
Eureka, Eagle Lock Co.....40&2%
Homer's Nos. 0 to 91.....30%
Homer's Scandinavian, &c., Nos. 100 to 506.....15%
A. E. Deltz.....40%
Champion Padlocks.....40%
Hotchkiss.....30%
Star.....60%
Horseshoe.....₩ doz $9, 50@50&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Scandinavian.....90&40%
E. T. Fraim's Keystone Scandinavian, Nos. 119, 120, 130 and 140.....90&10%
Other Nos.....65%
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Slaymaker, Barry & Co.
No. 1010 line.....90&5%
No. 41 line.....50&5%
No. 61 line.....60&5%
No. 21 line.....75&10%

Sash, &c.—

Clark's No. 1, $10; No. 2, $8 ₩ gr.....33⅓%
Ferguson's.....33⅓%
Victor.....60&10&2%
Walker's.....10%
Attwell Mfg. Co.....25&33⅓%
Reading.....66⅔&10@66⅔&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'zed.....₩ gr $4.00
CommonSense, Nickel Plated. ₩ gr $10.00
Universal.....30%
Kempshall's Gravity.....60%
Kempshall's Model.....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Paysen's Perfect.....60&10&10%
Hugunin's Sash Balances.....25&5&2%
Hugunin's New Sash Locks.....25&5&2%
Ives Patent.....60&10&5@60&10&10%
Fish (Liesche's pat.), No. 100, ₩ gr., $8; No. 105, ₩ gr., $10.....50%
Davis, Bronze, Barnes Mfg. Co.....60%
Champion Safety list January, 1893.70&5%
Security.....70%
Giant, list Jan., 1892.....70&5%
Wolcott's.....60&10&5%
Monarch.....50%

Lumber Tools—

See *Tools, Lumber.*

Lustro—

Four-ounce bottles.....₩ doz, $1.75; ₩ gross.....$17.00

Machines.

Boring—

	Without Augers.	Upright.	Angular.	
Douglas	$5.50	$6.75		50%
Snell's, Rice's Pat.	5.50	6.75	40&10&10%	
Jennings'	5.50	6.75	45&45&10%	
Other Machines	2.35	2.75		
Phillips' Patent with Augur	7.00	7.50		
Miller's Falls	7.50			25%

Fluting—

Knox, 4¼ inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3½-inch Rolls, $2.15.....35%
Eagle, 5½-inch Rolls, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel, 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal, ₩ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; 2, $12.50; 3, $10.00; 4, $8.25.....30%
Shepard Hand Fluter, No. 85, per doz $15.50.....40%
Shepard Hand Fluter, No. 110, ₩ doz $11.00.....40%
Shepard Hand Fluter No. 95, ₩ doz $8.00.....40%
Combined Fluter and Sad Iron. ₩ doz $15.00.....30%

Hoisting—

Moore's Hand Hoist, with Lock Brake.20%
Moore's Anti-Friction Differential Pulley Block.....20%
Energy's Mfg. Co.'s.....25%
Sure Grip Steel Tackle Blocks.....25%

Washing—

Anthony Wayne, ₩ doz., No. 1, $42; No. 2, $36; No. 3, $42.
Wayne American.....₩ doz $36.00
Western Star ₩ doz., No. 2, $36; No. 3 $30.
Welsell.....₩ doz $54.00
Fair and Square.....₩ doz $42.00

Mallets—

Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
E. & L. Block Co., Hickory & L. V. 30@30&10

Mattocks—Regular list, 60&10@60&10&5%

Measures—

Standard Fiberware, No. 1, peck ₩ dozen, $3.50; ½ peck, $3.00

Meat Cutters—

See *Cutters, Meat.*

Menders, Harness—

Per doz.....$2.00

Milk Cans—See *Cans, Milk.*

Mills—

Coffee—

Box and Side, List Jan. 1, 1888.60@60&10%
Net prices are often made which are lower than above discount.
American, Enterprise Mfg. Co., list Jan. 17, 1893.....20%
The Swift, Lane Bros.....30%
Waddell's New Box Mills, Ideal Brand, New List.....60%

Mincing Knives—

See *Knives, Mincing.*

Molasses Gates—

See *Gates, Molasses.*

Money Drawers—

See *Drawers, Money.*

Mowers, Lawn—

Best Machines: 10-in., $4; 12-in., $4.50; 14-in., $5; 16 in., $5.50; 18-in., $6
Low-Grade Machines: 10-in. $3; 12-in., $3.25 14-in., $3.50 each

Muzzles—

Safety.....₩ doz, $3.00, 25%

Nails.—

Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, May 1, '92.80&10&10&5%
Tack Mfrs.' list.....70&5@70&10%
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

	Nos. 6	7	8	9	10	
American	8¾	8¾	8¾	8¾	8¾	net
Ausable	28¢	26¢	25¢	24¢	23¢	40&10&2%
Clinton, Fin.	19¢	17¢	16¢	15¢	14¢	30&10%
Essex	28¢	26¢	25¢	24¢	23¢	40&10&5@50&5%
Lyra	19¢	17¢	16¢	15¢	14¢	40&10%
Snowden	19¢	17¢	16¢	15¢	14¢	40&10%
Vulcan	23¢	21¢	20¢	19¢	18¢	25%
Northwest'n.	25¢	23¢	22¢	21¢	20¢	25@25&5%
A. C.	25¢	23¢	22¢	21¢	21¢	25&10@33⅓&5%
C. B. K.	25¢	23¢	22¢	21¢	21¢	33⅓@33⅓&10%
Maud S.	25¢	23¢	22¢	21¢	21¢	40&10&5%
Champlain	28¢	26¢	25¢	24¢	23¢	40&5&2%
Saranac	23¢	21¢	20¢	19¢	18¢	40&5%
Champion	25¢	23¢	22¢	21¢	20¢	10&10&10%
Capewell.	19¢	18¢	17¢	16¢	16¢	10&5%
Anchor	23¢	21¢	20¢	19¢	18¢	35%
Western	23¢	21¢	20¢	19¢	18¢	50%
Empire Bronzed					13@14	₩ ℔

Picture—

Brass Head, Sargent's list.....60@60&10%
Brass Head, Combination list.....50&10%
Porcelain Head, Sargent's list.50&10&10%
Porcelain Head, Combination list.40&10%
Niles' Patent.....40%

Nail Pullers—See *Pullers, Nail.*

Nail Sets—See *Sets, Nail.*

Nut Crackers—

See *Crackers, Nut.*

Nuts—List Dec. 18, 1889.

	Square.	Hex.
Hot Pressed	5.80¢	6.50¢ off list
Cold Punched	5.00¢	5.10¢ off list

In packages of 100 ℔, add 1-10¢ ₩ ℔, net; in packages less than 100 ℔, add ⅛¢ ₩ ℔, net.

Oakum—

Best or Government.....₩ ℔ 6¼@7¼¢
U. S. Navy.....₩ ℔ 5¾@6¢
Navy.....₩ ℔ 5¢@5¼¢

Oil Tanks—See *Tanks, Oil.*

Oilers—

Zinc and Tin.....65&10@70&5%
Brass and Copper.....50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₩ doz. 10@10&5%
Malleable, Hammers' Old Pattern, same list.....45%
Prior's Pat. or "Paragon" Zinc. 60&10&10%
Prior's Pat. or "Paragon" Brass.....50%
Olmstead's Tin and Zinc.....60%
Olmstead's Brass and Copper.....50%
Broughton's Zinc.....60%
Broughton's Brass.....50%
Steel, Draper & Williams.....50%

Openers, Can—

Messenger's Comet.....₩ doz $3.00, 25%
American.....₩ gross $2.75@$3.00
Duplex.....₩ doz 25¢, 15@2%
Lyman's.....₩ doz $3.75, 20%
No. 4, French.....₩ doz $2.25, 55@60%
No. 5, Iron Handle.....₩ gr $6.00, 45@50%
Eureka.....₩ doz $2.50, 10%
Sardine Scissors.....₩ doz $2.75@3.00
Star.....₩ doz $2.75
Sprague, No. 1, $2.00; 2, $2.25; 3, $2.50; 66⅔@70%
Excelsior, No. 1 $2.50; No. 2, $1.50.....40%
World's Best ₩ gross, No. 1, $12.00; No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₩ doz $3.00.....55&5%
Domestic, ₩ doz $2.00.....45%
Champion, ₩ doz $2.00.....50%

Packing, Steam—

Rubber—

Standard.....70&70&10%
Extra.....60@60&5%
N. Y. B. & P. Co., Standard.....50%
N. Y. B. & P. Co., Empire.....60%
N. Y. B. & P. Co., Salamander.....25%
Jenkins' Standard, ₩ ℔ 80¢....25@25&5%

Miscellaneous—

American Packing.....10¢@11¢ ₩ ℔
Russia Packing.....14¢ ₩ ℔
Italian Packing.....13¢@.14¢ ₩ ℔
Cotton Packing.....15¢@17¢ ₩ ℔
Jute.....7¢@8¢ ₩ ℔

Pails—

Creamery—

S. S. & Co.: 18-qt., $7.00; 20-qt., $7.25 per doz.....5%

Galvanized—

	Quarts	10	12	14
Hill's Light Weight, ₩ doz.		$2.75	3.00	3.25
Hill's Heavy Weight, ₩ dz.		3.00	3.25	3.75
Heiwig's		2.50	2.75	3.00
Sidney Shepard & Co.		2.50	2.75	3.00
Iron Clad		2.50	2.75	3.00
Fire Buckets		2.75	3.25	3.50

Buckets—See Well Buckets.

Indurated Fiber Ware—25%

Star Pails, 12 qt.....₩ doz $4.20
Milk, 14 qt.....₩ doz $5.40
Stable, 14 qu.....₩ doz $6.00
Fire Pails, deep.....₩ doz $4.80
Fire Pails, round bottom.....₩ doz $5.40

Standard Fiber Ware—

	Plain.	Decr'd
Water Pails, 12 qt., ₩ dos.	$3.60	$4.00
Dairy Pails, 14 qt., ₩ doz.	4.00	4.50
Fire Pails, No. 1, 12 qt., ₩ doz	4.00	
Fire Pails, No. 2, 14 qt., ₩ doz	4.50	
Sugar Pails	5.50	6.00
Horse Pails	4.50	
Buggy Pails	3.50	
Slop Jars (bal. trap)	7.50	8.50
Chamber Pails, 14 qt.	6.00	7.00

Pans—

Dripping—

Small sizes.....₩ ℔ 5½¢
Large sizes.....₩ ℔ 5¢
Silver & Co. (Covered).....40%

Fry—

Standard List:	No.	0	1	2	3	4
	₩ doz.	$3.00	$3.75	$4.25	4.75	$5.25
	No.	5	6	7	8	
	₩ doz.	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods.....75@75&10%
Acme Fry Pans.....60&5%

Dust—

Steel Edge, No. 1.....₩ doz $1.75

Roasting and Baking—

Columbia, S. S. & Co.: Nos. 10, $2; 20, $2.25; 30, $2.50 each.....60&10%

Paper and Cloth—

Sand and Emery—

List April 19, 1886.... 50&10@50&10&10%
Sibley's Emery and Crocus Cloth.....30%

Parers—

Apple—

Advance.....₩ doz $4.75
Baldwin.....₩ doz 5.25
Bonanza.....each 4.00
Daisy.....₩ doz 4.00
Dandy.....each 7.50
Eclipse.....₩ doz 4.25
Eureka, 1888.....each 16.00
Family Bay State.....₩ doz 12.00
Favorite.....₩ doz 5.00
Gold Medal.....₩ doz 4.00
Ideal.....₩ doz 4.00
Improved Bay State....₩ doz 27.00@30.00
Little Star.....₩ doz 4.50
Monarch.....₩ doz 13.50
New Lightning.....₩ doz 5.00
Oriole.....₩ doz 4.00
Penn.....₩ doz 4.00
Perfection.....₩ doz 4.00
Pomona.....₩ doz 4.00
Rocking Table.....₩ doz 6.00
Turn Table.....₩ doz 4.50
Victor.....₩ doz 13.50
Waverly.....₩ doz 4.00
White Mountain.....₩ doz 4.00
72.....₩ doz 4.25
78.....₩ doz 7.00

Potato—

White Mountain.....₩ doz $4.50
Antrim Combination.....₩ doz $5.50
Hoosier.....₩ doz $13.50
Saratoga.....₩ doz $5.50

Pencils—

Faber's Carpenters'.....high list 50%
Faber's Round Gilt.....₩ gro $5.25
Dixon's Lead.....₩ gro $4.50
Dixon's Lumber.....₩ gro $6.75
Dixon's Carpenters'.....10%

Pencils, Soapstone—

See *Crayons.*

Pickers, Fruit—

Prize Fruit Pickers.....50%

Picks—

Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.....60&10@60&10&10%

Picture Nails—

See *Nails, Picture.*

Pinking Irons—

See *Irons, Pinking.*

Pins—

Bow—

Humason, Beckley & Co.'s.....60&10%
Sargent & Co.'s, $17 and $18.....60&10%
Peck, Stow & W. Co....50&10&50&10&5%

Curtain—

Silvered Glass.....net
White Enamel.....net

Escutcheon—

Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Pipe, Wrought Iron—

List April 13, 1893.

1¼ and under, Plain.....57½&10%
1¼ and under, Galv.....50&10%
1½ and over, Plain.....67½&10%
1½ and over, Galv.....57½&10%
Boiler Tubes, list Oct. 24, 1892....65&10%
Casing, list Nov. 16, 1892.....52½&10%
Inserted Joints Casing, list Nov. 16, 1892.....47½&5%
Steel Boiler Tubes.....27½&5%
Cold Drawn Seamless Steel Tubing..50%

Planes and Plane Irons—

Wood Planes—

Molding.....40@40&10%
Bench, First quality.....45@45&10%
Bench, Second quality.....50@50&10%
Bailey's (Stanley R. & L. Co.) ..50&10%

Iron Planes—

Bailey's (Stanley R. & L. Co.).....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10%
Steers' Iron Planes.....50@50&5%
Meriden Mal. Iron Co.'s.....50@50&5%
Davis' Iron Planes.....50@50&5%
Birmingham Plane Co.....50@50&5%
Gage Tool Co.'s Self-Setting...20&10&10%
Chaplin's Iron Planes.....50@50&5%
Sargent's.....60@60&10%
Standard Tool Co.....50@50&5%

Plane Irons—

Butcher's.....$5.00@$5.25 to $
Buck Bros.....30%
Auburn Thistle.....
Ohio.....30&10%
Sandusky.....
L. & I. J. White.....35%
Stanley R. & L. Co.....50&10%

Plates—

Felloe.....₩ ℔ 6¢@6½¢

Pliers and Nippers—

Button's Patent.....60%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in., $21.00 ₩ doz.....40%
Humason & Beckley Mfg. Co..50@50&10%
Lindsay's Giant.....33⅓%
Gas Pliers.....60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers.....40%
Russell's Parallel.....35%
P., S. & W. Cast Steel.....50%
P., S. & W. Tinners' Cutting Nippers, add 6%.....10%
Carew's Pat. Wire Cutters.....30%
Morrill's Parallel, ₩ doz., $12.00....30&5%
Cronk's 8 in., $15.00; 10 in.....$20
Cronk's Button Pattern.....60&10@60%
Cronk's Carrier Pliers.....60@60&5%

Plumbs and Levels—

Regular List.....75&10@75&10&5%
Stanley's Duplex.....20&10%
Stanley's Handy.....30&10%
Disston's.....50%
Cook's.....40&10%
Pocket Levels.....70&10@70&10&10%
Davis Iron Levels.....40&10%

Poachers, Egg—

Buffalo Steam Egg Poachers, ₩ doz. No. 1, $6.00; No. 2, $9.00.....33⅓%
Silver & Co., 6-Ring, ₩ doz, $4.00; 8-Ring.....$2.00

Pokes, Animal—

Bishop s I. X. L.....₩ doz $6.00
Bishop's Monarch.....₩ doz $4.50
Bishop's Pioneer.....₩ doz $4.00
Bishop's American.....₩ doz $3.00
Eagle, Double Stale.....₩ doz $5.75
Eagle, Single Stale.....₩ doz $3.75
Buckeye, Single Stale.....₩ doz $2.75
Bolding.....₩ doz $6.00
Metallic Horse Poke.....₩ doz., $6.00

Police Goods—

R. I. Tool Co., Handcuffs, $15.00 ₩ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₩ doz 10%
Tower's.....35%
Daley's Improved Handcuffs; 2 Hands, Polished, ₩ doz, $48.00; Nickeled, $57.00; 3 hands, Polished, ₩ doz, $72.00; Nickeled, $84.00.....35%
J. P. Lovell's Police Goods.....35%

Polish—

Metal—

Prestoline.....30%
Prestoline Paste.....33⅓%
Gaston's Silver Compound.....33⅓%

Stove—

Joseph Dixon's.....₩ gro, $6.00, 10%
Gem.....₩ gro, $4.50, 10%
Gold Medal.....₩ gro, $6.00, 25%
Lustro.....₩ gro, $4.75
Ruby.....₩ gro, $3.75
Rising Sun, 6 gro lots.....₩ gro $5.50
Dixon's Plumbago.....₩ ℔ 35
Boynton's Noon Day.....₩ gro $13.00
Parlor Pride Stove Enamel, ₩ gro
Yates' Liquid, 2 3 5 10 gal
₩ gal. .$0.80 .70 .60 .50
Yates Standard Paste Polish, 10 ℔ cans, ₩ ℔ 12½¢
Jet Black.....₩ gro $3.50
Japanese.....₩ gro $3.50
Fireside.....₩ gro $2.50
Diamond O. K. Enamel.....₩ gro $19.00
Bonnell's Liquid Stove Polish, ₩ gro $9.00
Bonnell's Paste Stove Polish, ₩ gro $9.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans.....12½¢
Black Jack Water Paste, 5 and 10 ℔ cans.....12½¢
Nickel Plate Paste.....₩ gro $6.00
Crown Paste.....₩ gro $7.20
Crown Paste in 5 and 10 ℔ pails, ₩ ℔ 13¢
Black Flag.....₩ gro $7.20
Black Flag, 5 and 10 ℔ pails..... ₩ ℔ 13¢
Black Flag, liquid, in bottles, ₩ gro $3.00
Diamond Rock Nickel Cleaner..... ₩ gro $10.20
Raven Paste.
5-lb. pails, (per case of 6 or 12), ₩ ℔ 13¢
Less than case.....₩ ℔ 15¢
Liquid, 6 oz. bottles.....₩ gross, $3.00
Liquid, 8 oz. bottles.....₩ gross, $2.00
Water Polish.....₩ gross, $5.50

Poppers, Corn—

Round or Square, 1 qt.. ₩ doz $1.00; ₩ gr $8.00
Round or Square, 1½ qt.... ₩ doz $1.00; ₩ gr $9.00
Round or Square, 2 qt.... ₩ doz $1.00; ₩ gr $14.00

Post Hole and Tree Augers and Diggers—

See *Diggers, Post Hole, &c.*

Potato Parers—

See *Parers, Potato.*

Pots—

Glue—

Tinned.....40&10@40&10&10%
Enameled.....40&10@40&10&10%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....40%

Powder—

In Canisters—

Fine Sporting, 1 ℔ each	0.90
Duck, 1 ℔ each	.60
Rifle, 1 ℔ each	.30
Rifle, ½ ℔ each	.18

In Kegs—

Rifle, 25-℔ kegs	$3.50
Rifle, 12½-℔ kegs	2.00
Rifle, 6¼-℔ kegs	1.15
Duck, 25-℔ kegs	11.00
Duck, 12½-℔ kegs	5.75
Duck 6¼ ℔ kegs	3.00

Presses—
Fruit and Jelly—
Enterprise Mfg. Co. 25%
Henis ..... ₩ doz $3.50
Shepard's Queen City 40%
Silver & Co. ..... ₩ doz $2.75

Pruning Hooks and Shears—See *Shears.*

Pullers' Nail—
Scranton ..... ₩ doz., $18.00, 33⅓&5%
Curtis Hammer ..... ₩ doz., $9.00
Giant, No. 1 ..... ₩ doz., $18.00, 10%
Giant, No. 2 ..... ₩ doz., $15.00, 10%
Pelican ..... ₩ doz., $9.00, 25%
Eclipse ..... Each, $2.00, net
Economy ..... ₩ doz., $6.00

Pulleys—
Hot House, Awning, &c. ..... 60%@70%
Japanned Screw ..... 60&10&10%
Brass Screw 70%
Japanned Side ..... 60&10&10%
Japanned Clothes Line ..... 60&10%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 ..... 50&10&50&10&5%
Hay Fork, "Anti-Friction," 5 in. solid, $5.70 ..... 50%
Hay Fork, "F" Common and Patent Bushed 20%
Hay Fork, Tarbox Pat. Iron 20%
Hay Fork, Reed's Self-Lubricating 60%
Hay Fork, Moore's Anti-Friction 5 in. Wheel, ₩ doz., $12.00 ..... 40%
Shade Rack 45%
Tackle Blocks—See Blocks.
Shepard's Niagara, No. 25 ..₩ doz 23¢ net
Sash (Auger Mortise).
Common Sense 60%
Empire 60%
Ideal, Nos. 2, 4, 10 & 15 } 10% less 1¢ ₩
Acme ..... } dos net.
Star ..... }
On bbl. lots extra 5%.
Ideal, Nos. 25 and 55. ..₩ doz. 22¢ net.

Pumps—
Cistern, Best Makers ..... 60@60&10%
Pitcher Spout, Best Makers ..... 67½@70%
Pitcher Spout, Cheaper G'ds ..75@75&10%

Punches—
Saddler's or Drive, good ..₩ doz., 60@65%
Bemis & Call Co.'s Cast Steel Drive..50&5%
Bemis & Call Co.'s Springfield Socket..65%
Spring, good quality ..₩ doz., $2.50@$2.60
Spring, Leach's Pat 15%
Bemis & Call Co.'s Spring ..... 50&5%
Bemis & Call Co.'s Check 55%
Solid Tinners', P., S. & W. Co., ₩ doz., $1.44 ..... 55%
Tinners' Hollow Punches, P., S. & W. Co. ..... 20&2%
Rice Hand Punches 15%
Avery's Revolving 40%
Avery's Sawset and Punch—See Sawsets
Niagara Hollow Punches ..... 20&2%
Niagara Solid Punches 50%

Rail—
Sliding Door, Wr't Brass ..₩ ℔, 35¢, 40%
Sliding Door, Bronzed Wr't Iron ..₩ ft., 7¢
Sliding Door, Iron, Painted ..₩ ft., 4¢, 40%
Barn Door, Light ..in. ¼ ⅝
Per 100 feet $2.00 2.50 3.10, 10%
S. D. for N. E. Hangers—
Small, Med. Large.
Per 100 feet ..... $3.15 2.70 3.25 Net
Terry's Steel Rail ..... ₩ ft., 4½¢
Victor Track Rail, 7¢ ₩ foot ..... 50&2%
Carrier, double braced, Steel Rail, ₩ foot ..... 3½&4¢
Lundy Parlor Door, Planed Edge, ₩ ft. 7¢
Moore's Steel Rail ..... 25&10%
Moody Steel Rail ₩ ft., 5¢ 45%

Rakes—
Cast Steel, Association g'ds ..70@70&5&2%
Cast Steel, outside g'ds ..... 70@70&5&2%
Malleable ..... 70@70&5%
Gibbs' Lawn Rake ..... ₩ doz., $4.90
Gibbs' Canton Lawn Rake ..₩ doz., $3.75
Gibbs' Acme Lawn Rake ..... ₩ doz., $4.75
Gibbs' Favorite Lawn Rake ..₩ doz., $3.90
Gibbs' Crown Lawn Rake, No. 1 ..... ₩ doz., $4.90; No. 2, $5.40
Oneida Lawn Rake ..... ₩ doz., $6.00
Fort Madison Prize Bow Brace and Peerless 65%
Fort Madison Steel Tooth Lawn Rake, $6.00 ..... 25%

Razors—
J. R. Torrey Razor Co 20%
Wostenholm and Butcher, $10 to $.... 10%
Jordan's AAA1, new list ..... Net
Jordan's Old Faithful, new list ..... Net
Galvanic ..... ₩ doz., $15.00
Electric Cutlery Co. ..... Net
Campbell Cutlery Co. 50%

Razor Strops—
See *Strops, Razor.*

Rings and Ringers—
Bull Rings—
Union Nut Co. 55%
Sargent's ..... 75&10%
Hotchkiss' low list 30%
Humason, Beckley & Co.'s ..... 70&10%
Peck, Stow & W. Co.'s..50&10@50&10&10%
Ehrich Hdw. Co., White Metal, low list. 50@50&10%

Hog—
Top of the Hill Ringers ..... ₩ doz $2.00
Top of the Hill Rings ..... ₩ doz $1.25
Hill's Improved Ringers ..... ₩ doz $1.25
Hill's Old Style Ringers ..... ₩ doz $1.12½
Hill's Tongs ..... ₩ doz $3.00
Hill's Rings ..... ₩ doz bxs $1.00
Perfect Rings ..... ₩ doz bxs $1.50
Perfect Ringers ..... ₩ doz $2.15@$2.25
Blair's Hog Ringers ..... ₩ doz $2.00
Blair's Hog Rings ..... ₩ doz 90¢@$1.00
Champion Ringers ..... ₩ doz $2.00
Champion Rings, Double ..... ₩ doz $2.25
Brown's Ringers ..... ₩ doz $2.00
Brown's Rings ..... ₩ doz $1.15@$1.25
Electric Hog Rings ..... ₩ doz boxes $1.50
Electric Hog Ringers ..... ₩ doz $2.00
Major Rings ..... ₩ doz $1.25
Major Ringers ..... ₩ doz $2.00

Rivets and Burrs—
Norway Iron. t Nov. 17, '87 ..... 60&10%
Second quality 70%
Copper ..... 60@60&10%
Coppered Iron, Bettina Brand ..... 50&5%

Rivet Sets—See *Sets.*

Roasting and Baking Pans—See *Pans, Roasting and Baking.*

Rods—
Barn Door, Sargent's list. ....60&10&10%
Acme Moore's Anti-Friction 55%
Union Barn Door Roller 70%
Thompson Mfg. Co.'s Lawn Rollers ..30%

Rope—The following prices are f.o.b., New York or factory, and are shaded ¼@½¢ on large lots; terms, 1% 5 for cash.
Manila, 7-16 in. diam. and larger ₩ ℔ 9½¢
Manila ..... ½ in. ₩ ℔ 10 ¢
Manila ..... ⅜ and 5-16 in. ₩ ℔ 10½¢
Manila, Tarred Rope ..... ₩ ℔ 9 ¢
Manila, Hay Rope ..... ₩ ℔ 9 ¢
Sisal ..... 7-16 inch and larger ₩ ℔ 7¾¢
Sisal ..... ⅜ in. ₩ ℔ 8¼¢
Sisal ..... ¼ and 5-16 in. ₩ ℔ 9¾¢
Sisal, Hay Rope ..... ₩ ℔ 7¾¢
Sisal, Tarred Rope ..... ₩ ℔ 7½¢
Sisal, Medium Lath Yarn ..... ₩ ℔ 7½¢
New Zealand ..7-16 in. & larger ₩ ℔ 7½¢
New Zealand ..... ⅜ inch, ₩ ℔ 7¾¢
New Zealand ..¼ and 5-16 inch, ₩ ℔ 8¼¢
New Zealand, Hay Rope ..... ₩ ℔ 7½¢
New Zealand, Tarred Rope ..... ₩ ℔ 6¾¢
Cotton Rope ..... ₩ ℔ 13½@16¢
Jute Rope ..... ₩ ℔ 6¾@7¢

Wire—
List February, 1892. All kinds 45%

Rules—
Boxwood ..... 80&10&10%
Ivory ..... 50&10%
Starrett's Steel Rules and Straight Edges ..... 25&10%

Sad Irons—See *Irons, Sad.*

Sand and Emery Paper and Cloth—
See *Paper and Cloth.*

Sash Cord—See *Cord, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage.*

Saws—
Disston's Circular ..... 45@45&5%
Disston's Cross Cut, list Jan. 1,'93.40&10%
Disston's Hand 25%
Woodrough & McParlin.
Hand, Panel and Rip ..... 25&10%
Cross Cuts, list Jan. 1, 1893 ..... 45&10%
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip ..... 30&10%
Cross Cuts, list Jan. 1, 1893 ..... 45&10%
Atkins' Circular ..... 50&10%
Atkins' Cross Cuts, new list 40%
Atkins' Mulay, Mill and Drag ..... 50&10%
Atkins' One-Man Saw 40%
Atkins' Wood Saws 40%
Peace Circular and Mill ..... 45@45&5%
Peace Hand Panel and Rip ..... 25@25&5%
Peace Cross Cuts, list Jan. 1,'93 ..45&10%
Richardson's Circular and Mill.45@45&5%
Richardson's X Cuts, list Jan. 1,'93.45&10%
Richardson's Hand, &c ..... 25@25&5%
C. E. Jennings & Co.'s brand 25%

Hack Saws—
Griffin's, complete ..... 40&10@50
Griffin's Hack Saw Blades ..... 40&10@50
Star Hack Saws and Blades 25%
Eureka and Crescent 25%

Scroll—
Lester, complete, $10.00 ..... 25%
Rogers, complete, $4.00 ..... 25%
Barnes' Builders' and Cab Makers' $15, 25%
Barnes' Scroll Saw Blades 35%

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Scales—
Hatch, Counter, No. 171, good quality, ₩ doz $18.00@$19.00
Hatch, Tea, No. 161 ..... ₩ doz $6.50@$7.00
Union Platform, Plain ..... $2.10@2.20
Union Platform, Striped ..... $2.40@2.50
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka 25%
Chatillon's Favorite 40%
Family, Turnbulls ..... 30@30&10
Riehle Bros.' Platform 40%

Scale Beams—
See *Beams, Scale.*

Scissors, Fluting 45%

Scrapers—
Adjustable Box Scraper (S. R. & L. Co.) $6.00 ..... 30&10%
Box, 1 Handle ..... ₩ doz $2.25@$2.50
Box, 2 Handle ..... ₩ doz $3.00@$3.25
Defiance Box and Ship ..... 20&10%
Foot ..... 50&10&60%
Ship, Common ..... ₩ doz $3.50 net
Ship, R. I. Tool Co. 10%

Screen Window and Door Frames—See *Frames*

Screw Drivers—
See *Drivers, Screw.*

Screws—
Bench and Hand—
Bench, Iron ..... 55&10@55&10&10%
Bench, Wood, Beech ..... ₩ dos $2.25
Bench, Wood, Hickory ..... 20&10%
Hand, Wood ..... 25&10@25&10&5%
Hand, Grand Rapids, list 35%

Coach, Lag and Hand-Rail—
Lag, Blunt Point, list Jan. 1, 1890 ..... 80@80&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890 ..... 80@80&5%
Hand Rail, Sargent's ..... 70&10%
Hand Rail, H. & B. Mfg. Co. ..70&10@75%
Hand Rail, Am. Screw Co. 75%

Jack Screws—
Jack Screws, Millers Falls list.50@50&10%
Jack Screws, P., S. & W. 35%
Jack Screws, Sargent 70%
Jack Screws, Stearns' ..... 40@40&10%

Cork—
Humason & Beckley Mfg. Co. ..40&10@50%
Williamson's ..... 33⅓@33⅓&5%
Detroit Cork Screw Co. 33⅓%

Machine—
Flat Head Iron 65%
Round Head Iron 60%

Wood—
List January 1, 1891.
Flat Head Iron 70%
Round Head Iron ..... 65% } Extra 10
Flat Head Brass ..... 70% } or 10&
Round Head Brass ..... 65% } 10% often
Flat Head Bronze ..... 70% } given.
Round Head, Bronze ..... 65% }
Rogers' Drive Screws 33⅓%

Scroll Saws—See *Saws, Scroll.*

Scythes—
Grain ..... 40&5@40&10%
Grass ..... 40&10&50%

Scythe Snaths—
See *Snaths, Scythe.*

Sets—
Awl and Tool—
Aiken's Sets, Awls and Tools, No. 20, ₩ doz $10.00 ..... 60@60&5%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9 ..... 45%
Millers Falls Adj. Tool Hdls., Nos. 1, $12; 2, $18 ..... 25%
Henry's Combination Haft ..₩ doz $6.50
Stanley's Excelsior:
No. 1, $7.50; No. 2, $4.00; No. 3, $5.50 ..... 30&10%
Common Brad Sets,
No. 42, $10.50; No. 43, $12.50 ..70&10&5%

Nail—
Square ..... ₩ gr. $4.00@$4.25
Round ..... ₩ gr. $3.25
Buck Bros. 27½%
Cannon's Diamond Point ..₩ gr. $12, 20%

Rivet—
Regular list 70%

Saw—
Stillman's Genuine ..₩ doz $5.00@7.75, 40&5%
Stillman's Pattern, Hand, ₩ doz $3.25; Cross Cut, $5.25 ..... 55%
Common Lever ..₩ doz $2.00, 45@50%
Morrill's No. 1, $14.00 ..... 40&20%
No. 11, $15.50 ..... 40&20%
Nos. 3 and 4, Cross Cut, $22.50 ..40&20%
No. 5, Mill, $30.00 ..... 40&20%
No. 10, $15.00 ..... 40&20%
Leach's..No. 0, $8.00; No. 1, $15..15&20%
Nash's ..... 30&10@20&10&10
Hammer, Hotchkiss $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat.45%
Bemis & Call Spring Hammer ..... 30&5%
Bemis & Call Co.'s Plate 20%
Bemis & Call Co.'s Cross Cut ..... 30&5%
Aiken's Genuine ..... $13.00, 50&10@60%
Aiken's Imitation ..... $7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star 25%
Leopold ..... 40&10@50%
Atkin's Lever ..₩ doz No. 1, $6.00
Atkin's Criterion ..₩ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 ..... 40&10%
Avery's Saw Set and Punch 50%
Kohler's Royal ..₩ doz $7.00
Kohler's Giant Royal ..₩ doz $12.00
Crescent ..₩ doz $3.00
Lloyd's Acme ..₩ doz $15, 40&10%
Taintor Positive ..₩ doz $18, 50%

Sharpeners, Knife—
Larkins'.
Applewood Handles ..₩ doz. $6.00, 40%
Rosewood or Cocobola ..₩ doz. $9.00 40%

Shaves, Spoke—
Iron 45%
Wood 30%
Bailey's (Stanley R. & L. Co.) ..... 40&10%
Stearns' ..... 30&10%
Cincinnati ..... 25&10%
Goodell's ₩ doz. $9.00 ..... 25%

Shears—
American (Cast) Iron..75&10@75&10&5%
Barnard's Lamp Trimmers..₩ doz. $3.75
Seymour's, List Dec. 1881, 60&10&10@60&10&10&5%
Heinisch's, List Dec. 1881, 60&10&10@60&10&10&5
Heinisch's Tailor's Shears 33⅓%
Cast Steel Trimmers:
First quality ..... 80@80&10%
Second quality ..... 80&10@80&10&10%
Acme Cast Shears ..... 10&10%
Diamond Cast Shears 10%
Clipper ..... 10&10%
Victor Cast Shears ..75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel 40%
Hatch Cutlery Co., Solid Steel Forged.60%
Davenport Cutlery Co. ..... 60@60&10%
Clauss brand, Japanned 70%
Clauss brand, Nickeled, same list ..60%
Galvanic 3½ to 9 in., ₩ doz. $1.00 ₩ inch
Electric Cutlery Co ..... Net
Campbell Cutlery Co., Jap'd 75%
Nickel Plated 65%

Tinners' Snips—
Wrt. Handles, Steel Blades ..20@20&10%
Niagara Snips and Shears ..... 20&10%
Cast Handles, Laid with Steel 40%

Pruning Shears and Hook—
Disston's Combined Pruning Hook and Saw ..₩ doz. $18.00, 20&10%
Disston's Pruning Hook, ₩ doz. $12.00 ..... 20&10%
E. S. Lee & Co.'s Pruning Tools.50&10@70%
Pruning Shears, Henry's Pat., ₩ doz. $3.75@$4.00
Henry's Pruning Shears, ₩ doz. $4.25 @$4.50
Wheeler, M. & C. Co., Combination, ₩ doz $12.00
Dunlap's Saw and Chisel, ₩ doz $8.50, 30%
J. Mallinson & Co., No. 1, $6.25; No. 2, $7.25
P. S. & W. Co. 60%
Levin Pruner No. 1, $15.00 ₩ doz ..40&5%
Levin Pruner No. 2, $21.00 ₩ doz ..40&5%

Tinners', &c.—
Shears and Snips (P. S. & W.) ..... 30@33⅓
Snips, J. Mallinson & Co. 33⅓%

Sheaves—
Sliding Door—
M. W. Co., list July, 1888 ..50&10@60&5%
R. & E., list Dec. 18, 1885 ..... 55&30%
Corbin's list ..... 60&10&5%
Patent Roller ..... 60&10&5%
Patent Roller, Hatfield's 75%
Russell's Anti-Friction, list Dec. 18, 1885 ..... 60&5%
Moore's Anti-Friction 50%

Sliding Shutter—
R. & E., list Dec. 18, 1885 ..... 60&10&5%
Sargent's list 70%
Reading list ..... 60&10&10%

Shells—
First quality 4, 8, 10 and 12 gauge ..... 25&10&5%
First quality Rival, Club and Climax brands, 14, 16 and 20 gauge ($7.50 list) ..... 20&10&5%
Prize ..... 40&5%
Star, Club, Rival and Climax Brands ..... 33⅓&10&5%
Smokeless brand, 12, 10, 16 gauge ..... 33⅓&10&5%
Trap brand, 12 and 10 gauge..33⅓&10&5%
Selbold's Comb. Shot Shells ..... 15&5%
Brass Shot Shells, 1st quality ..... 60&5%
Brass Shot Shells, Club, Rival, Climax. ..... 65&5%

Shells, Loaded—
Standard List, July 19, 1890 ..... 40&10&10@40&10&10&5
In ton lots (2000 lbs.) count of 5's and 2's made. 1 dis. 2 dis.

Ship Tools—
L. & I. J. White ..... 20&5%

Shoes, Horse, Mule, &c.—
Horse—
Burden's, Perkins', Phoenix, Standard, Diamond State and Bryden's Boss, at factory $4.00
Bryden's Frog Pressure, at factory..$5.00
Mule—
Add $1 ₩ keg to above prices.
Ox Wrought—
Ton lots ..... ₩ ℔ 9¢
1000 ℔ lots ..... ₩ ℔ 9½¢
500 ℔ lots ..... ₩ ℔ 10¢

Shot—
	Small lots.	
Drop, up to B, 25-℔ bag	$1.45	
Drop, up to B, 5-℔ bag	.35	
Drop, B and larger, 25-℔ bag	1.70	
Drop, B and larger, 5-℔ bag	.40	
Buck and Chilled, 25-℔ bag	1.70	
Buck and Chilled, 5-℔ bag	.40	
Dust Shot, 25-℔ bag	2.00	
Dust Shot, 5-℔ bag	.45	

Shovels and Spades—
Ames' Shovels, Spades, &c., list Nov. 1, 1885 ..... 30%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron ..... 50&10%
Griffith's C. S. ..... 60@60&5%
Griffith's Solid C. S. R. R. Goods 20%
St. Louis Shovel Co. ..... 30@30&7½%
Hussey, Binns & Co. ..... 15@15%
Hubbard & Co. ..... 30@30&7½%
Lehigh Mfg. Co. ..... 50&10%
H. M. Myers Co. 30%
Payne Pettebone & Son ..... 33⅓&5%
Remington's (Lowman's Pat.) 40&10@50%
Rowland's Black Iron..60&10@50&10&5%
Rowland's Steel ..... 60&5@60&10%
Terra Haute Shovel & 35%

Shovels and Tongs—
Iron Head ..... 60&10@60&10&5%
Brass Head ..... 60&10&10%

Sieves and Sifters—
Mann's Tin Rim ..... 50&20%
Buffalo Metallic, S. S. & Co. ..... 50&25%
Shaker (Barler's Pat.) Flour Sifters ..₩ gr $21.00
Electric Light..₩ doz $1.50; ₩ gro $15.00
A. & W. Sifters ..₩ gr $15.00
Hunter's Genuine ..₩ doz $1.75, ₩ gr $16.50
Hunter's Imitation ..₩ doz $1.75; ₩ gr $15.00

Sieves, Wooden Rim—
	Iron	Plated
Mesh 18, Nested, ₩ doz	$0.80	$1.00
Mesh 20, Nested, ₩ doz	.95	1.10
Mesh 24, Nested, ₩ doz	1.15	1.35

Sinks, Wrought Steel—
Columbus, Painted or Unpainted ..... 30@30&10 %
Columbus, Galvanized and Enameled ..... 50@50&10 %
New Era, Painted ..... 40&10@50&5 %
New Era, Galvanized and Enameled ..... 60&10&10@70&5 %

Skeins, Thimble—
Western list ..... 75&5@75&10%
Columbus Wrt. Steel..Special net prices
Coldbrookdale Iron Co. 60%
Seneca Falls Pattern 60%
Utica P. S. T. Skeins 60%
Utica Turned and Fitted 30%

Slates—
School, by case ..... 50&10@50&10&10%

Slaw Cutters—See *Cutters.*

Sleds Hand—
Tubular Steel ..₩ doz $24.00 40&10 Lots of 6 dos 50%

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.)....65%
Fitch's (Bristol)....50&10%
Hotchkiss....10%
Andrews....50%
Sargent's Patent Guarded....70&10&10%
German, new list....40&10%
Covert....50&10&5&2%
Covert, New Patent....50&10&5&2%
Covert, New R. E....60&10&5&2%
Covered Spring....60&10&10%
Covert's Saddlery Works' Triumph..33⅓%
John Prots Snaps....75&75&5%
Kelley & Woolworth's Steel Harness....50&10@60%

Snaths—

Scythe....50&2@50&5&2%

Soldering Irons—

See *Irons, Soldering.*

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8¼-inch, ₱ doz., No. 5, $8; No. 5X, $9.
Spittoons, Daisy, 8-inch, No. 1, 4; 10 and 11 inch, $6.

Spoke Shaves—

See *Shaves, Spoke.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list....70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list....70&10%
Buffalo, S. S. & Co....33⅓&2%

Silver Plated—

months or 5% cash 30 days:
Meriden Brit. Co., Rogers....40&15%
C. Rogers & Bros....40&15%
Rogers & Bros....40&15%
Reed & Barton....40&40&5%
Wm. Rogers Mfg. Co....40, 15&5%
Simpson, Hall, Miller & Co....40, 15&5%
Holmes & Edwards Silver Co....40, 15&5%
L. Boardman & Son....50&12½%

Miscellaneous—

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver....50&10&5%
No. 30 Silver Metal....50&10&5%
No. 24 German Silver....50&10&5%
No. 50 Nickel Silver....50&5%
No. 40 Nickel Silver....50&10&5%
Wm. Rogers Mfg. Co.:
Rogers' Silver Metal....50&10&6%
18% Rogers' German Silver....60&6%
20% Rogers' Nickel Silver....50&6%
German Silver....50&50&5%
German Silver, Hall & Elton....50&5% cash
Nickel Silver....50&5@50&10&5% cash
Brittannia....60@60&5%
Boardman's Nickel Silver, list July 1, 1891....60&7½&5%
Boardman's Brittannia Spoons, case lots....60&5% cash

Springs—

Door—

Torrey's Rod, 39 in....₱ doz $1.20@1.2
Warner's No. 1, ₱ doz $1.50; No. 2, $2.40....55@55&10%
Gem (Coil), list April 19, 1886....20%
Star (Coil), list April 19, 1886....20&10%
Victor (Coil)....60&10@60&10&5%
Champion (Coil)....60&10@60&10&10%
Cowell's, No. 1, ₱ doz $18.00; No. 2, $15.00....50@50&10%
Rubber, complete, ₱ doz $4.50....55&10%
Hercules....50@50&10%
Phœnix....33⅓%

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll....60&10@60&10&10&10 or net prices
Cliff's Bolster Springs....25%

Squares—

Steel and Iron, Nickel-Plated....80&10&10@80&25%
Try Square and T Bevels....60&10&10%
Disston's Try Square and T Bevels....50%
Winterbottom's Try and Miter....30&10%
Starrett's Micrometer Caliper Squares, 25%
Avery's Flush Bevel Squares....40%
Avery's Bevel Protractor....50%

Squeezers—

Fodder—

Blair's....₱ doz $2.00
Blair's "Climax"....₱ doz $1.25

Lemon—

orcelain Lined, No. 1....₱ doz $6.00 25&30%
Wood, No. 2....₱ doz $3.00, 35%
Wood, Common....₱ doz $1.70@1.75
Dunlap's Improved....₱ doz $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $9; 12, $18 ₱ doz....25&10%
Jennings' Star....₱ doz $2.50
The Boss....₱ doz $2.50
Dean's..No. 1, ₱ doz $5.50; 2, $3.35; 3, $1.90; Queen, $2.50
Little Giant....50@50&5%
King....40&5%
Hotchkiss Straight Flash....₱ doz $12.00
Silver & Co., Glass....₱ gro. $9.00

Standard Fiber Ware—

See *Ware, Standard Fiber.*

Staples—

Barbed Blind, ½ in. and larger..₱ ℔ 7@7½¢
Barbed Blind, ¼ in....₱ ℔ 8@8½¢
Fence Staples, Galvanized, Same price as B'rb Wire
Fence Staples Plain, See Trd. Rep
Grand Crossing Tack Co.'s list....75&10%

Steelyards....40&10@50%

Stocks and Dies—

Blacksmith's:
Waterford Goods....35%
Butterfield's Goods....35%
Lightning Screw Plate....25@30%
Reece's New Screw Plates....25@30%
Reversible Ratchet....30%
Gardner....25%
Green River....25@30%

Stops, Bench—

Merrill's, ₱ doz., Nos. 1, 29.50 ☐2, $12.00....40&20%
Hotchkiss's....₱ doz $5, 10@10&10%
Weston's, No. 1, $10 No. 2, $9, 25&10&5%
McGill's, ₱ doz $3....10%
Cincinnati....25&10%
Terrell's Nos. 1 and 2, ₱ doz., $3; No. 3, $3.60....30%

Stone—

Stones, Grind—See *Grindstones.*

Scythe Stones—

Pike Mfg. Co., list April, 1892....33⅓&5
Cleveland Stone Co., list Nov. 1892..33⅓&5

Oil Stones, &c.—

Pike Mfg. Co:
Hindostan No. 1, ₱ ℔....8¢
Sand Stone....5¢
Turkey Oil Stone, 4 to 8 in....80¢ } 40@40&10%
Turkey Slips....$2.00
Lily White Washita....60¢
Rosy Red Washita....60¢
Washita Stone, Extra....60¢
Washita Stone, No. 1....40¢
Washita Stone, No. 2....30¢
Lily White Slips....90¢
Rosy Red Slips....90¢
Washita Slips, Extra....80¢
Washita Slips, No. 1....70¢
Arkansas Stone, No. 1, 3 to 5¼ in., $2.80
Arkansas Stone, No. 1 5¼ to 8 in., $3.50
} 33⅓@33⅓&10%
Lake Superior....₱ ℔ 13¢
Lake Superior Slips....₱ ℔ 20¢

Stove Polish—

See *Polish, Stove.*

Stretchers Carpet—

Cast Steel, Polished....₱ doz $2.2
Cast Iron, Steel Points....₱ doz 75@80¢
Socket....₱ doz $1.75
Bullard's....25@25&10%

Strops, Razor—

Genuine Emerson....60@60&5%
Imitation " ..₱ doz $2.00, 20&10&5%
Torrey's....20%
Badger's Belt and Com....₱ doz $2.00
Lamont Combination....₱ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89, 50%
Electric Cutlery Co....Net
Campbell Cutlery Co....Net

Stuffer, Sausage—

Miles' Challenge, ₱ doz $20....50@50&5%
Perry....₱ doz, No. 1, $15.00; No. 0, $21.00....50&5@50&10%
Draw Cut No. 4, each $30.00....20%
Enterprise Mfg. Co., list Jan 17, '93..25%
Silver's....40&10%

Sweepers, Carpet and Lawn—

Carpet—

Bissell No. 5....₱ doz $17.00
Bissell No. 8....₱ doz $20.00
Bissell, Grand....₱ doz $36.00
Standard....₱ doz $24.00
Domestic....₱ doz $21.00
Domestic, No. 2....₱ doz $22.00
Grand Rapids....₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic....₱ doz $15.00
Improved Parlor Queen, Nickeled....₱ doz $27.00
Japanned....₱ doz $24.00
Excelsior....₱ doz $22.00
Garland....₱ doz $18.00
Parlor Queen....₱ doz $24.00
Housewife's Delight....₱ doz $15.00
Ladies' Friend....₱ doz $15.00
Ladies' Friend No. 2....₱ doz $16.00
Advance....₱ doz $18.00
Our Leader....₱ doz $19.00
Triumph....₱ doz $20.00
Goshen....₱ doz $21.00
Supreme....₱ doz $22.00
Easy....₱ doz $22.00
Gilt Edge....₱ doz $24.00
Acme....₱ doz $26.00
Imperial....₱ doz $26.00
Grand Republic....₱ doz $30.00
Banner....₱ doz $22.00
The Star....₱ doz $21.00
Reliable....₱ doz $22.00
The Rapid....₱ doz $22.00
Our Own....₱ doz $27.00
Model....₱ doz $27.00
Goshen Sweeper Company, Grand Rapids, Mich., make the following rebates:
5 dozen in 6 months....₱ doz $1.00
10 dozen in 6 months....₱ doz $2.00
25 dozen in 6 months....₱ doz $3.00
Except on L.F., when 10 dozen price is $13.50, and 25 dozen $13.00.

Lawn—

Thompson Mfg. Co....80%

Swings—

Davies Lawn....25%

Tacks, Brads &c.—

List October 19, 1889. Old established straight Weights. Short Weight goods are sold at lower prices.

Carpet Tacks—
American, Blued....66⅔%
American, Tin'd and Cop'd....70%
Steel, Bright and Blued....66⅔%
Steel, Tinned and Coppered....70%
Swedes Iron, Blued....72½%
Swedes Iron, Tinned....75%
American Iron Tacks, Domestic..66⅔%
Swedes Iron Tacks—
S. S., Blued....66⅔%
S. S., Tinned....70%
Lanc., Blued....55%
Lanc., Tinned....60%
Gimp and Lace Tacks—
S. S., Blued....62½%
S. S., Tinned....66⅔%
Lanc., Blued....55%
Lanc., Tinned....60%
Basket and Trimmers' Tacks—
Lanc....52½%
S. S....55%
Hungarian Nails....60%
Common and Patent Brads....55%
Leathered Tacks....10%
Brush Tacks, S. S....60%
Looking Glass Tacks, S. S....35%
Picture-Frame Points, S. S....35%
Finishing Nails....60%
Trunk and Clout Nails—
Black....65%
Tinned or Coppered....67½%
Basket Nails....60%
Chair Nails....52½%
Cigar Box Nails....45%
Tin Capped Nails....60%

Extra discount 25&2%

Miscellaneous—

Double Point....90@90&10%
Wire Carpet Nails....50&10%
Claw Handle Carpet....₱ gross $4.00
Bonnie Blue....₱ box 1 50
Bill Nye Brad Box....4 00
Parisian Gilt Nails, cartoon....50
Home Tacks, No. 50 ₱ case (12 cartons), $36.00; No. 100, ₱ case (12 cartons), $72.00.
Home Nails, No. 200, ₱ case (12 cartons), $30.00; No. 400, ₱ case (12 cartons), $60 00.
} 60&5%
Upholsterers' Nails....50&10%

Wire Brads and Nails

Steel-Wire Brads, R. & E. Mfg. Co.'s list 50&10%
See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co.: 30-gal. $8.75; 60-gal., $11 each....50&10&5%

Tapes, Measuring—

American....40@40&5%
Spring....40%
Chesterman's, Regular list....25@30%

Thermometers—

Tin Case....30@30&10%

Thimble Skeins—See *Skeins.*

Ties, Bale—Steel.

Standard Wire, list....50&10&5%

Tinners' Shears, &c —

See *Shears, Tinners' &c.*

Tinware—

Stamped, Japanned and Pieced, list Jan 20, 1887....70&10@70&25%

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco.*

Tools—

Coopers'—

Bradley's....20%
Barton's....30@20&5%
L. & I. J. White....20&5%
Albertson Mfg. Co....25%
Beatty's....30%
Sandusky Tool Co....30@30&5%
Shaves Cincinnati Tool Co....20%

Lumber—

Ring Peavies, "Blue Line"..₱ doz $20.00
Ring Peavies, Common....₱ doz $18.00
Steel Socket Peavies....₱ doz $21.00
Mall. Iron Socket Peavies...₱ doz $19.00
Cant Hooks, "blue Line"....₱ doz $16.00
Cant Hooks, Common Finish..₱ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish....₱ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish....₱ doz $14.00
Cant Hooks, Clip Clasp, Common Finish....₱ doz $12.00
Hand Spikes....₱ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₱ doz, 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₱ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₱ doz, 12 ft., $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₱ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00.
Swamp Hooks....₱ doz $18.00

Saw—

Atkins', new list....40%

Transom Lifters—

See *Lifters, Transom.*

Traps—

Game—

Newhouse....40@40&5%
Oneida Pattern....70&10%
Game, Blake's Patent....40&10&5%

Mouse and Rat—

Mouse Wood, Choker, ₱ doz holes, 9@10¢
Mouse, Round Wire....₱ doz $1.50 10%
Mouse, Cage, Wire....₱ doz $2.50 10%
Mouse, Catch-'em-alive..₱ doz $2.50 15%
Mouse, Bonanza....₱ doz 0.90@$1.00
Rat, Decoy....₱ gr $10.00, 10%
Ideal....₱ gr $10.00
Cyclone....₱ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₱ doz., 75¢; in full cases, ₱ doz. 60¢@65¢
Hotchkiss Imp. Rat Killer...₱ gro $18.50
Hotchkiss New Rat Killer...₱ gro $16.50
Schuyler's Rat Killer....₱ gro $15.00
Dandy....₱ doz., $1.75
Waddell's Go Bang, ₱ gro....$12.50

Fly—

Harper, Champion or Paragon....₱ doz. $1.75, ₱ gro. $16.50
Balloon, Globe or Acme....₱ doz. $1.50, ₱ gro. $13.50

Triers—

Butter and Cheese....25%

Trimmers, Spoke—

Bonney's....₱ doz $10.00, 50%
Stearns'....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₱ doz. 55&10%
Douglas'....₱ doz $9.00, 20%
Cincinnati....25%

Trowels—

Lothrop's Brick and Plastering, 20&10&5@35%
Reed's Brick and Plastering....15%
Disston's Br'k and Plastering..25@25&10%
Peace's Plastering....25@25&5%
Clement & Maynard's....20@20&5%
Rose's Brick....15@20%
Brade's Brick....25%
Worrall's Brick and Plastering....20%
Garden....70%
Cleves' Angle Trowel, ₱ gro, No. 1, $36; No. 2, $30; No. 3, $15. net @ 10%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list....40%
Thompson Mfg. Co....40%
Barnes' Barrel Trucks....40%

Tubes. Boiler—

See Pipe

Twine—

Flax Twine—

	DC.	B.
No. 9, ¼ and ⅛ ℔ Balls	32¢	31¢
No. 12, ¼ and ⅛ ℔ Balls	32¢	30¢
No. 18, ¼ and ⅛ ℔ Balls	30¢	29¢
No. 24, ¼ and ⅛ ℔ Balls	30¢	29¢
No. 36, ¼ and ⅛ ℔ Balls	18¢	29¢

No. 264 Mattrass, ¼ and ⅛ ℔ Balls, 52@54¢
Chalk Line, Cotton, ⅛ ℔ Balls....25¢
Mason Line, Linen, ⅛ ℔ Balls....65¢
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine)....15¢
3-Ply Hemp, 1 ℔ Balls....16¢@16¢
3-Ply Hemp, 1¼ ℔ Balls....15¢@15¢
Cotton Wrapping, 5 Balls to ℔....15¢@18¢
2, 3, 4 and 5 Ply Jute, ⅛ ℔ Balls....10¢
Wool....6¢@6¢
Paper....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ₱ to doz....18¢

Vises—

Solid Box....50&10@60%

Parallel—

Fisher & Norris Double Screw....15&10%
Stephens'....25@30%
Parker's....30@25%
Wilson's....50%
Howard's....40%
Bonney's....50%
Millers' Falls....40@40&10%
Trenton....40&5@40&10%
Merrill's....15@20%
Hollands'....35@40%
Sargent's....70&10%
Backus and Union....40%
Double Screw Leg....15&10%
Prentiss....20@25%
Simpson's Adjustable....40%
Moore's....30%
Massey Quick Action....20@25%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00....40&10@50
Stearn's....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises....33⅓@35%
Hopkins'....₱ doz $17.50, 10%
Reading....40&10%
Wentworth....20&10%
Economy, ₱ doz., Nos. 110, $10.00; 120, $15.00....50&10&10&5%

Miscellaneous—

Phœnix Vises....33⅓%
Phœnix Hand Vises....₱ doz $3.60, 33⅓%
Cowell Hand Vises....20%
Bauer's Pipe Vises....10%
Cincinnati....25&10%
Enterprise Pipe Vises....each $3.00, 40%
Massey Combination Pipe Vise....40%

Wads—Price Per M.

U.M.C.&W.R.A.—B. E., 11 up..63¢
U.M.C.&W.R.A.—B. E., 9&10..82¢
U.M.C.&W.R.A.—B. E., 8....96¢
U.M.C.&W.R.A.—B. E., 7....$1.10
U.M.C.&W.R.A.—P. E., 11 up. 1.15
U.M.C.&W.R.A.—P. E., 9&10.. 1.50
U.M.C.&W.R.A.—P. E., 8..... 1.70
U.M.C.&W.R.A.—P. E., 7..... 1.80
Eley's B. E., 11 and larger....$1.70@$1.75
Eley's P. E., 12 to 20....3.00@ 3.10

Dis. 30&5%

Wagon Boxes—

See *Boxes, Wagon.*

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow-Ware—
Ground....60&10@60&10&10%
Unground....65&10@70&5%
White Enameled Ware—
Maslin Kettles....70&10@75%
Boilers and Saucepans....60@60&5%
Tinned Boilers and S'pans....60@60&5%
Rustless Hollow Ware....50@50&5%
Gray Enameled Ware—
Stove....50%
Maslin Kettles....60&60&10%
Boilers and Saucepans....40&5%

Enameled—

Agate and Granite Ware, list Jan. 1, 1889....33⅓&10%
Ironclad Enameled Ware....dis 33⅓&10%

Kettles—

Galvanized Tea-Kettles—

Inch.....	6	7	8	9
Each....	55¢	60¢	65¢	75¢

Standard Fiber—

	Per Dos. Plain.	Decorated.
Wash-Basins, 10½ in....	$1.80	2 00
Wash-Basins, 12 in.....	2.00	2.50
Keelers, 11¼ in.....		3.50
Cuspidors.....		7.50
Spittoons, "Daisy," 8 in.	3.50	4.00
Peck Measure.....	3.50	
Half-peck Measure.....	3.00	

See also Pails.

Indurated Fiber.—

Spittoons No. 2, ₱ doz....$6.00
Basins, Ringed, ₱ doz., No. 2....2.80
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₱ nest....$5.75
Keelers Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₱ nest....$2.55
Butter Bowls 15, 17 and 19-inch (3 pieces), ₱ nest....$1.50
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces), ₱ set....$1.90
See also Pails.

Dis. 30&5%

Silver Plated, Hollow—

4 mo. or 5% cash in 30 days.
Reed & Barton....
Meriden Britannia Co....
Simpson, Hall, Miller & Co....
Rogers & Brother....
Hartford Silver Plate Co....
William Rogers Mfg. Co....
} 40&5%

Washers—

Size hole....5-16 ⅜ ½ ⅝ to 1⅛
Washers....5¼ 4½ 3¾ 2¾
In lots less than 200 ℔, ₱ ℔, add ½¢, 5-℔ boxes 1¢ to list.

Washer Cutters—

See *Cutters, Washers.*

Water Coolers—

See *Coolers, Water.*

Wedges—

Iron....₱ ℔ 5½¢
Steel....₱ ℔ 9½¢

Weights, Sash—

Solid Eyes....₱ ton $18.00@$19.00

Well Buckets Galvanized—See *Buckets, Well, Galvanized.*

Wheels Well—

8 in., $2.00 10 in. $2.50 12 in $2.75

Whips

American Whip Co.: Length.	4½	5	5½	6	6½	7	7½	8 ft.
X. L. Whalebone Driving...	$18.00	20.00	22.00	24.00	27.00	30.00	33.00	36.00
Eureka, Two-thirds Whalebone.	....	....	15.00	16.50	18.00	20.00	....	....
Bull Bone, Half-length Whalebone	....	....	11.00	12.00	13.00	15.00	....	....
American Standard	8.00	8.50	9.50	10.50	12.00	13.50	15.00	16.50
True Grip, Raw Hide Center....	6.00	6.00	6.50	7.00	7.50	9.00	....	....
New Name, Stocked Java, Black and Wine Colors	....	....	....	6.00	...	....	....	....
Americus, 93 Pen Whip	....	....	....	6.00	....	....	....	....
Gents' Light Driving No. 111...	....	....	....	6.00	....	....	....	....
Gents' Light Driving No. 106...	....	....	....	5.00	....	....	....	....
Hand-made Stocked Java No. 103	....	....	3.75	4.00	....	...	....	....

Per dozen.

A large variety of cheaper grades.....$0.50@$3.00
Team Whips.....$2.00@$7.50
Toy Whips.....₩ gro. $2.50@$12.00
Hardware Assortment, 10/American, 75 Whips for $50.00.

Wire and Wire Goods—

Iron—

Market,
Br. & Ann., Nos. 0 to 18. 75&10@75&10&5% } Extra 5@10% often given and net prices often made on large lots.
Cop'd, Nos. 0 to 18. 75&5@
Galv., Nos. 0 to 18..... 70&5@70&10%
Tin'd, Tin'd list, Nos. 0 to 18.....70@70&10%

Stone,
Br. and Ann'd, Nos. 16 to 18.....80%
Bright and Ann'd, Nos. 19 to 26.....80&5% } Extra 10% often given.
Br. and Ann'd, Nos. 27 to 36.....80%&5%
Tinned.....85&10%
Tinned Broom Wire, 18 to 21, ₩ lb....4½¢
Galvanized Fence .....75&10%
Brass, list Jan. 18, 1884.....40&5%
Copper, list Jan. 18, 1884.....40@5%
Annealed Wire on Spools.....60%

Malin's An'aled & Tin'd on Spools..60&5%
Malin's Brass and Cop. on Spools...50&5%
Tate's Spooled, Tin'd & Annealed..60&5%
Tate's Spooled Cop. and Brass 50%
Cast Steel Wire 50%
Stubs' Steel Wire.....$6.00 to £, 30%
Steel Music Wire, 12 to 30, Imported... 60@70¢ ₩ lb

Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

Standard list.....85@85&10%

Wire Cloth and Netting—

Painted Screen Cloth ₩ 100 ft. $1.75@$2.00
Galvanized Wire Netting.....75@75&10%

Wire, Barb—

See Trade Report.

Wire Rope—See *Rope, Wire.*

Wrenches—

American Adjustable 40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....60%
Coes' Genuine.....50@50&10%
Coes' "Mechanics'".....50&10&3%
Girard Standard.....65&10@70%
Lamson & Sessions' Engineers'.....60&10%
Lamson & Sessions' Standard.....70&10%
P. S. & W. Agricultural..... } 75&10@80%
Girard Agricultural..... }
Lamson & Sessions' Agric'l.. }
W. & B. Diamond..... }

Bemis & Call's:
Pat. Combination Bright .....40&5%
Pat. Combination Black.....40 & 10%
Merrick's Pattern.....45%
Brigg s Pattern.....30&10%
Cylinder or Gas Pipe.....45&5%
No. 3 Pipe.....55%
Aiken's Pocket (Bright).....$6.00, 60&10 %
The Favorite Pocket.....₩ doz., $4.00, 40%
Webster's Pat. Combination.....35%
Boardman's.....30%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Eagle.....50&10%
Acme, Bright.....50&5%
Acme, Nickeled.....40&5%
Hercules.....70@70&5%
Walker's.....55&5%
Diamond Steel.....55&5%
Cincinnati Brace Wrenches.....25&10%
Tafts Vise Wrench.....55&10&5%

Wringers, Clothes—

Am. Wringer Co.'s list, Jan. 2, '93..2% cash
Colby WringerCo., list Sept. 1, '91..2% cash
Lovell Mfg. Co., list Jan. 1, 1892..2% cash
Peerless Mfg. Co., list Feb., 1892..2% cash
National Wringer & Mfg. Co., list June 1, 1892.....2% Cash

Wrought Goods—

Staples, Hooks, &c., list March 17, 1892 85&10@85&10%

Paints, Oils and Colors.—Wholesale Prices.

Animal and Vegetable Oils

Linseed, City, raw.. per gal.	..	@	50
Linseed, City, boiled.....	..	@	53
Linseed, Western, raw.....	48	@	50
Lard, City, Extra Winter...	75	@	76
Lard, City, Prime.....	..	@	75
Lard, City, Extra No. 1.....	65	@	..
Lard, City, No. 1.....	55	@	..
Lard, Western, prime.....	..	@	75
Cotton-seed, Crude, prime..	..	@	40
Cotton-seed, Crude, off grades.....	35	@	38
Cotton-seed, Summer Yellow, prime.....	45	@	46
Cotton-seed, Summer Yellow, off grades.....	42	@	44
Sperm, Crude.....	85	@	90
Sperm, Natural Spring.....	..	@	..
Sperm, Bleached Spring.....	..	@	..
Sperm, Natural Winter.....1.00		@	1.03
Sperm, Bleached Winter....1.05		@	1.08
Whale, Crude.....	..	@	..
Whale, Natural Winter.....	55	@	56
Whale, Bleached Winter....	..	@	58
Whale, Extra Bleached.....	59	@	60
Sea Elephant, Bleached Winter.....	..	@	..
Menhaden, Crude, Sound...	40	@	..
Menhaden, Crude, Southern	..	@	..
Menhaden, Light Pressed...	42	@	43
Menhaden, Bleached W'ter.	45	@	..
Menhaden, Extra Bleached.	48	@	..
Tallow, City, prime.....	60	@	65
Tallow, Western, prime....	..	@	60
Cocoanut, Ceylon.....	..	@	6
Cocoanut, Cochin.....	..	@	6¾
Cod, Domestic.....	38	@	40
Cod, Foreign.....	42	@	45
Red Elaine.....	44	@	46
Red Saponified.....₩ lb	5½@		5½
Bank..... per gal	40	@	41
Straits.....	41	@	42
Olive, Italian, bbls.....	58	@	60
Neatsfoot, prime.....	75	@	80
Palm, prime, Lagos.....₩ lb	7¾@		8¼

Mineral Oils—

Black, 29 gravity, 25 @ 30 cold test.....per gal	7	@	7½
Black, 29 gravity, 15 cold test.....	7½@		8
Black, 29 gravity, summer...	6	@	6½
Cylinder, light, filtered.....	14	@	16
Cylinder, dark, filtered.....	10	@	13
Paraffine, 23½@24 gravity..	11	@	12
Paraffine, 25 gravity.....	10	@	11
Paraffine, 28 gravity.....	7½@		8
Paraffine, red.....	9½@		10½

Paints and Colors—

Barytes, Foreign, ℔ ton..$22.00		@	24.00
Barytes, Amer. floated....29.00		@	32.00
Barytes, Amer. No. 1.....16.00		@	18.00
Barytes, Amer. No. 2.....13.00		@	15.00
Barytes, Amer. Nc. 3.....11.00		@	12.00
Blue, Celestial.....₩ lb	6	@	8
Blue, Chinese.....	40	@	50
Blue, Prussian.....	25	@	40
Blue, Ultramarine.....	8	@	25
Brown, Spanish.....	1½	@	1
Brown, Vandyke, Amer....	3	@	3½
Brown, Vandyke, English.	6	@	8
Carmine, No. 40, in bulk..	2.75	@	..
Carmine, No. 40, in boxes or barrels.....	2.85	@	..
Carmine, No. 40, in ounce bottles.....	3.75	@	..
Chalk, in bulk.....₩ ton..	2.40	@	2.50
Chalk, in bbls..₩ 100 ℔...	33	@	40
China Clay, English..... ₩ ton.	13.00	@	18.00
Cobalt Oxide, prep'd.....	9.00	@	11.00
Cobalt Oxide, black..... lots 100 ℔.	1.90	@	....
Cobalt Oxide, black..... less 100 ℔.	1.96	@	....
Green, Paris, in bulk.....	10	@	10½
Green, Paris, 170 @ 175 ℔ kegs.....	10½@		11
Green, Paris, small pack.	12	@	17
Green, Chrome, ordinary.	6	@	12
Green, Chrom.', pure.....	22	@	25
Lead, Eng., B.B. white....	8½@		10
Lead, Amn. White, dry or in oil: Kegs, lots less than 500 ℔....	7	@	7½
Kegs, lots 500 ℔ to 5 tons..	6¼@		6¾
Kegs, lots 5 tons to 12 tons..	6¾@		6¾
Kegs, lots 12 tons and over..	6¼@		6½
Lead, White, in oil, 25 ℔ tin pails, add to keg price.....	..	@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....	..	@	1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.	..	@	2¾
Lead, Red, bbls. and ½ bbls...	6	@	7
Lead, Red, kegs.....	6¼	@	7½
Litharge, kegs.....	6¼	@	7½
Litharge, bbls. and ½ bbls.....	6	@	7

Terms, &c.—Lead and Litharge.—On lots of 500 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1½
Ocher, French Washed.....	1½	@	2½
Ocher, German Washed.....	1½	@	3
Ocher, American.....	½	@	1½
Orange Mineral, English....	8½	@	9
Orange Mineral, French.....	10	@	10½
Orange Mineral, German....	8½	@	9
Orange Mineral, American.	8½	@	8¾
Paris White, English Cliff-stone.....	1.00	@	1.15
Paris White, American.....	65	@	75
Red, Indian, English.....	5½	@	7
Red, Indian, American.....	2	@	6½
Red, Turkey.....	9	@	14
Red, Tuscan.....	9	@	11
Red, Venetian, American.... ₩ 100 ℔..1.00		@	1.10
Red, Venetian, English.....	1.20	@	1.35
Sienna, Italian, Burnt and Powd. ₩ ℔	4	@	5
Sienna, Ital., Burnt Lumps.	1½	@	3½
Sienna, Ital., Raw, Powd...	4½	@	5½
Sienna, Ital., Raw, Lumps..	1¾	@	3½
Sienna, American, Raw.....	1½	@	1¾
Sienna, American, Burnt and Powdered.....₩ ℔	1½	@	1¾
Talc, French.....	..	@	1½
Talc, American.....	1½	@	1½
Terra Alba, Fr'ch. ₩ 100 ℔	95	@	1.25
Terra Alba, English.....	70	@	80
Terra Alba, American No. 1	65	@	75
Terra Alba, American No. 2	45	@	50
Umber, Turkey, Burnt and Powdered.....₩ ℔	3½	@	4
Umber, Turkey Bnt. Lu.....	2¾	@	3
Umber, Turkey, Raw and Powdered.....	3½	@	....
Umber, Turkey, R'w Lumps	2½	@	2¾
Umber, Turkey, Bnt. Amer..	1¼	@	1½
Umber, Turkey, R'w Amer.	1¼	@	1½
Yellow, Chrome.....	10	@	25
Vermillion, American Lead.	11½	@	12
Vermillion, Quicks'er, bulk..	57	@	..
Vermillion, Quicks'er, bags..	58	@	..
Vermillion, Quicksilver sm'r pkgs.....	62	@	..
Vermillion, English Import.	85	@	90
Vermillion, Imitation, Eng..	8	@	35
Vermillion, Trieste.....	90	@	92½
Vermillion, Chinese.....	92½	@	95
Whiting Common, ₩ 100 ℔	37½	@	42½
Whiting Gilders'.....	45	@	55

Zinc, American, dry.....₩ ℔	4½@		..
Zinc, French, Red Seal.....	7½@		.
Zinc, French, Green Seal	9	@	..
Zinc, French, V. M. X.....	..	@	7
Zinc, Antwerp, Red Seal....	7½@		..
Zinc, Antwerp, Green Seal..	7½@		..
Zinc, German, L. Z. O.....	6½@		7¼
Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over.....	10¾@		11¼
lots less than one ton.....	11	@	11¾
Zinc, V. M. in Poppy Oil, Red Seal..	..	@	..
lots of 1 ton and over.....	10	@	10¼
lots of less than 1 ton.....	10¼@		10¾

Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls. 4%. No discount allowed on less than bbl. lots.

Colors in Oil—

Black, Drop, Frankfort.....	25	@	30
Black, Drop, English.....	12	@	15
Black, Drop, Domestic.....	7	@	10
Black, Lampblack, Best	30	@	35
Black, Lampblack, Common	7	@	18
Black, Ivory	8	@	15
Blue, Chinese.....	35	@	40
Blue, Prussian.....	20	@	45
Blue, Ultramarine.....	12	@	13
Brown, Vandyke.....	7	@	13
Green, Chrome.....	8	@	13
Green, Paris.....	16	@	18¾
Sienna, Raw.....	7	@	14
Sienna, Burnt.....	7	@	14
Umber, Raw.....	7	@	10
Umber, Burnt.....	7	@	10

Putty—

In barrels and ½ bbls.....	.01½@		.01¾
In tubs.....	.01¾@		.01¾
In tin cans.....	.01¾@		.02¼
In bladders..	.01¾@		.02½

Spirits Turpentine—

In regular bbls.....	28½@		29
In machine bbls.....	29	@	29½

Glue—

Low Grade.....₩ ℔	8	@	10
Cabinet	12	@	14
Medium White.....	13	@	15
Extra White.....	17	@	20
French.....	10	@	22
English.....	10	@	13
Irish.....	12	@	..

THE IRON AGE.

The oldest paper in the world devoted to the interests of the Hardware, Iron and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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CURRENT METAL PRICES.

JUNE 14, 1893.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron:	
⅜ to 2 in. round and square.. 1 to 6 in. x ⅜ to 1 in....	₩ lb 1.80 @ 1.90¢
Refined Iron:	
⅜ to 2 in. round and square. 1 to 4 in. x ⅜ to 1½ in.... 4½ to 6 in. x ⅜ to 1 in.	₩ lb 1.90 @ 2.00¢
1 to 6 in. x ¼ and 5-16	₩ lb 2.10 @ 2.20¢
Rods—⅜ and 11-16 round and sq.	₩ lb 2.00 @ 2.10¢
Bands—1 to 6 x 3-16 to No. 12	₩ lb 2.20 @ 2.30¢
"Burden Best" Iron, base price.	₩ lb .... 3.00¢
Burden's "H. B. & S." Iron, base price	₩ lb .... 2.80¢
"Ulster"	₩ lb .... 3.00¢
Norway Bars	3.75 @ 4.00¢
Norway Shapes	4.50 @ 5.00¢

Merchant Steel from Store—

	Per lb
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2½¢
Best Cast Steel, base price in small lots.	8 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Sheet Iron from Store—

Black—	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ lb 2¾ @	3½¢
17 to 20	₩ lb 3 @	3¼¢
21 to 24	₩ lb 3¼ @	3½¢
25 and 26	₩ lb 3⅝ @	3⅝¢
27	₩ lb 3½ @	3¾¢
28	₩ lb 3⅝ @	3¾¢
American B. B.	₩ lb 4¢ @ 4½¢	

Russia, Planished, &c.

Genuine Russia, according to assortment	₩ lb 12¢ @ 13¢
Patent Planished	₩ lb A, 10¢; B, 9¢, 5⅛
Craig Polished Sheet Steel	₩ lb, 8½¢

Galvanized.

	B.	B.
Nos. 10 to 16	₩ lb	4¢
17 to 22	₩ lb	4¼¢
23 to 24	₩ lb	4½¢
25 to 26	₩ lb	4¾¢
27	₩ lb	5 ¢
28	₩ lb	5¼¢
29 to 30	₩ lb	6¼¢

English Steel from Store—

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged, Cast	₩ lb 16 ¢
Best Double Shear	₩ lb 15 ¢
Blister, 1st quality	₩ lb 12 ¢
German Steel, Best	₩ lb 10 ¢
3d quality	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality	₩ lb 15 ¢
2d quality	₩ lb 14 ¢
3d quality	₩ lb 12½¢
R. Mushet's "Special"	₩ lb 48 ¢
" " Annealed	₩ lb 75 ¢
" "Titanic"	₩ lb 20 ¢

METALS—

Tin—

	Per lb
Banca, Pigs	22¢ @ 21¼¢
Straits, Pigs	21½¢
Straits in Bars	22¼¢

Tin Plates—

Duty: 2.2¢ ₩ lb.

Charcoal Plates—Bright—

Guaranteed Plates command special prices, according to quality.

	Per box.
Melyn and Calland Grade. IC, 10 x14..	@ $6.50
" " " IC, 12 x12..	@ 6.75
" " " IC, 14 x20..	@ 6.50
" " " IC, 20 x28..	@ 13.00
" " " IX, 10 x14..	@ 8.50
" " " IX, 12 x12..	@ 8.75
" " " IX, 14 x20..	@ 8.50
" " " IX, 20 x28..	@ 17.00
" " " DC, 12½x17..	@ 6.00
" " " DX 12½x17..	@ 8.00
Allaway Grade IC, 10 x14..	@ 6.00
" " IC, 12 x12..	@ 6.25
" " IC, 14 x20..	@ 6.00
" " IC, 20 x28..	@ 12.00
" " IX, 10 x14..	@ 7.50
" " IX, 12 x12..	@ 7.75
" " IX, 14 x20..	@ 7.50
" " IX, 20 x28..	@ 15.00
" " DC, 12½x17..	@ 5.50
" " DX, 12½x17..	@ 7.00

Coke Plates—Bright—

Steel Coke.—IC, 10 x 14, 14 x 20.. $5.50	@ $5.00
10 x 20..	@ 8.50
20 x 28.. 11.50	@ 12.00
IX, 10 x 14, 14 x 20..	@ 7.00
8V Grade.—IC, 10 x 14, 14 x 20..	@ 5.60

Charcoal Plates—Terne—

Guaranteed Plates command special prices according to quality.

Dean Grade.—IC, 14 x 20	@ $5.65
20 x 28	@ 11.00
IX, 14 x 20	@ 8.40
20 x 28	@ 12.80
Abecarne Grade.—IC, 14 x 20	@ 5.55
20 x 28	@ 10.80
IX 14 x 20	@ 6 40
20 x 28	@ 12.80

Tin Boiler Plates—

IXX, 4x 26 112 sheets	@ $13.35
IXX, 14 x 28 112 sheets	@ 14.50
IXX, 14 x 31 112 sheets	@ 16.00

American Terne Plates.—Apollo.

IC, 14 x 20	$6.25
IC, 20 x 28	12.50
IX, 14 x 20	7.25
IX 20 x	14.50

Copper—

Duty: Pig, Bar and Ingot, 1¼¢; Old Copper, 1¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot—

Lake	@ 12 ¢
Ansonia grade Arizona	@ 11½¢
Ansonia grade Casting	@ 11 ¢

Sheet and Bolt—

Prices adopted by the Association of Copper Manufacturers of the United States, May 19, 1892. Subject to a discount of 15 % @ 25 %, according to size of order.

Not wider than	Not longer than	And longer than	Weights per sq. foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		22	22	23	23	24	25	28	30
30	72		22	22	23	23	25	27	31	....
36	96		22	22	23	24	26	30	33	....
36	96		22	22	23	25	27	31	35	....
48	96		22	22	24	26	28	32	..	....
48	96		22	22	25	27	29	33	..	....
60	96		22	22	26	27	29	34	....	....
60	96		22	23	28	....	....	....	....	....
84	96		23	24	....	....	....	....	....	....
84	96		24	25	....	....	....	....	....	....
Ov'r 84 in. wide			25	27	....	....	....	....	....	....

Bolt Copper, ⅜ inch diameter and over, per pound 22¢

Circles, Segments and Pattern Sheets, 60 in. diameter and less, 3¢ ₩ lb advance over prices of Sheet Copper required to cut them from.

Circles, Segments and Pattern Sheets, over 60 in. diameter, up to 96 in. diameter inclusive, 4¢ ₩ lb advance over prices of Sheet Copper required to cut them from.

Circles, Segments and Pattern Sheets, over 96 in. diameter, 5¢ ₩ lb advance over prices of Sheet Copper required to cut them from.

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ lb over the foregoing prices.

Cold or Hard Rolled Copper lighter than 14 oz. ₩ square foot, 2¢ ₩ lb over the foregoing prices.

All Polished Copper over 20 in. wide, 2¢ ₩ lb advance over the foregoing prices.

Copper Bottoms, Pits and Flats—

	Per lb.
14 ounce to square foot and heavier	26¢
12 ounce and up to 14 ounce to square foot	27¢
10 ounce and up to 12 ounce	29¢
Lighter than 10 ounce	32¢

Circles less than 8 inches diameter, 2¢ ₩ lb additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

15 % @ 25 % discount, according to size of order.

Copper Wash Bowl Bottoms—

Tinned ₩ lb 34¢, 15% @ 25%

Tinning—

Net.

Tinning sheets on one side, 10, 12 and 14 x 48 each	8¢
Tinning sheets on one side, 30 x 60 each	30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.), each	12¢
Tinning sheets on one side, other sizes, per square foot	2½¢

For tinning both sides double the above prices.

Planished Brass and Copper—

Not larger than 30 x 60.

16 oz. and heavier	24¢ ₩ lb
14 oz.	25¢ ₩ lb
12 oz.	27¢ ₩ lb

Seamless Brass Tubes—

July 6, 1892. Net.

O. G.	N. G.	⅛	¼	⅜	½	⅝	¾	1	1¼
8-14	6-12	32	28	25	24	23	22	19	
15	13	33	28	26	25	24	23	20	
16	14	34	29	27	26	25	24	20	
17	15	35	30	28	27	26	25	21	
18	16	37	31	29	27	26	25	22	
19	17	38	32	30	29	28	27	24	
20	18-19	39	34	32	31	30	29	26	
21	20	41	36	34	33	32	31	29	
22	21	43	37	35	34	33	32	31	
23	22	45	39	37	36	35	34	34	
24	23	48	41	39	38	36	35	36	
25	24	51	44	41	40	39	38	40	

Copper, Bronze and Gilding Tube, 3¢ ₩ lb additional
Brazed Brass Tubing. (To No. 20 inclusive.)

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch	45¢
Plain, 5-16 inch	45¢
Plain, ¼ inch	60¢
Plain, 3-16 inch	$1.00
Plain, ⅛ inch	$1.50
Fancy Tubing, Brass, to No. 20, inclusive	43¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list	30 @ ..%

Roll and Sheet Brass—

(Brown & Sharpe Standard Gauge.)

Common High Brass: Wider than and including	in. 2 10	in. 10 12	in. 12 14	in. 14 16	in. 16 18	in. 18 20	in. 20 22	in. 22 24
To No. 20, inclusive	.21	.22	.23	.25	.27	.29	.31	.33
Nos. 21, 22, 23 and 24	.22	.23	.24	.26	.28	.30	.32	.34
Nos. 25 and 26	.22½	.23½	.24½	.27	.29	.31	.33	.35
Nos. 27 and 28	.23	.24	.25	.28	.30	.32	.34	.36
Common High Brass: Wider than and including	in. 24 26	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40
To No. 20, inclusive	.36	.39	.42	.46	.50	.55	.60	.65
Nos. 21, 22, 23 and 24	.37	.40	.43	.47	.51	.56	.61	.66
Nos. 25 and 26	.38	.41	.44	.48	.52	.57	.63	.71
Nos. 27 and 28	.39	.42	.45	.49	.53	.58	.65	.75

Discount from List 15 % to 25 %.

Brass and Copper Wire—

List January 17, 1884.

Numbered by Stubs' gauge.	Soft & hard high brass.	Spring high brass.	Low brass.	Copper.
All Nos. to No. 16, inclusive	$0.22	$0.24	$0.26	$0.30
No. 17 and No. 18	.23	.25	.27	.31
No. 19 and No. 20	.24	.26	.28	.32
No. 21, or 0.032 diameter	.25	.27	.29	.33

Discount 15 % to 25 %.

Fine Numbers.

Numbered by London gauge.	Brass.	Spring high brass.	Low brass.	Copper.
No. 22	$0.26	$0.28	$0.30	$0.34
No. 23	.28	.30	.33	.36
No. 24	.30	.32	.34	.38
No. 25	.32	.34	.36	.40
No. 26	.35	.37	.39	.43
No. 27	.38	.40	.42	.46
No. 28	.42	.44	.46	.51
No. 29	.45	.47	.49	.54
No. 30	.48	.50	.52	.62
No. 31	.51	.53	.55	.67
No. 32	.55	.57	.59	.73
No. 33	.59	.61	.63	.82
No. 34	.64	.66	.68	.95
No. 35	.70	.72	.74	1.30
No. 36	.76	.78	.80	1.50
No. 37	1.00	1.02	1.04	1.70
No. 38	1.30	1.33	1.34	2.00
No 39	2.00	2.02	.00	3.25
No. 40	2.60	2.62	.60	5.75

— % discount.
Spring Wire, 2¢ ₩ lb advance.

Copper Belt and Hose Rivets and Burrs—

	Per lb.		Per lb
No. 5	49¢	No. 11	56¢
No. 6	49¢	No. 12	58¢
No. 7	49¢	No. 13	60¢
No. 8	50¢	No. 14	65¢
No. 9	52¢	No. 15	70¢
No. 10	54¢		

60 % @ 5 % discount.

Tobin Bronze—Rods.

Drawn Rods for Bolts, Forgings, &c.

¼ to 3½ inches inclusive	17¢ ₩ lb
Over 3½ to 5 inches inclusive	18¢ ₩ lb

Piston Rods, Finished True, Smooth and Straight.

¼ to 3½ inches inclusive	18¢ ₩ lb
Over 3½ to 5 inches inclusive	19¢ ₩ lb

Spelter—

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	5¢@5¼¢
Bertha (pure)	8¢@8¼¢

Zinc—

Duty: Sheet, 2½¢ ₩ lb.

600 lb casks	6¾¢
Per lb	7 ¢

Lead—

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 2½¢ ₩ lb.

American Pig	4⅜¢
Bar	4¾¢
Pipe, subject to discount 20%	6¼¢
Tin-Lined Pipe, subject to discount 20%	12¢
Block Tin Pipe, subject to discount 20%	37½¢
Sheet, subject to discount 20%	4¢

Old Lead in exchange, 3¼¢ ₩ lb.

Solder—

½ @ ½ (Guaranteed)	13½¢ @ 15¢
No. 1	11½¢ @ 12½¢

Prices of Solder indicated by private brands vary according to composition.

Antimony—

Cookson	₩ lb 11½¢
Hallett's	" 10¾¢@11 ¢

Aluminum—

Duty: 15¢ ₩ lb.

No. 2 grade metal, in ton lots	₩ lb .75
No. 1 (guaranteed to be 98% pure and over), in ton lots	₩ lb .90
Lots less than 1 ton	10¢ ₩ lb additional

Old Metals—

Prices Paid in New York.

Heavy Copper	₩ lb 9½¢
Light and Tinned Copper	₩ lb 8¾¢
Heavy Brass	₩ lb 7 ¢
Light Brass	₩ lb 6 ¢
Lead	₩ lb 3½¢
Tea Lead	₩ lb 3½¢
Zinc	₩ lb 2½¢
No. 1 Pewter	₩ lb 14 ¢
No. 2 Pewter	₩ lb 7 ¢
Wrought Scrap Iron	₩ gross ton $13.00
Heavy Cast Scrap	₩ gross ton 9.0
Stove Plate Scrap	₩ gross ton 6.0
Burnt Iron	₩ gross ton 4.0